MEDICAL WRITING

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THE TECHNIC AND THE ART

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Preface

This book represents the gradual evolution of theory and practice on medical writing in my association with the editorial department of the American Medical Association for some 35 years, and more recently with *Postgraduate Medicine, Excerpta Medica* and The Blakiston Company. When Dr. George H. Simmons became editor of *The Journal of the American Medical Association* he accumulated various memorandums concerned with the preparation of papers for publication. Later I assisted him in preparing an essay entitled "Art and Practice of Medical Writing." The present volume constitutes an extensive revision of various previous editions together with much new material.

The help of the following, whose suggestions are incorporated in this book, is acknowledged with appreciation: Marjorie Hutchins Moore, for many years librarian of the American Medical Association; F. K. Bryant; Dr. Austin Smith, and Dr. Howard Fox, late editor emeritus of the *Archives of Dermatology and Syphilology*, who assisted in the preparation of the section on Latin and Greek terminology.

The late Jewel F. Whelan, my assistant for more than twenty years, aided greatly in assembling material for this book. She had a veritable passion for accuracy and the meticulous editing of scientific papers.

Grateful acknowledgment is made also to William Brown McNett, for material included in the chapter on Illustrations and for the preparation of several illustrations, and to Laura E. Moore for the chapter on indexing.

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An Acceptable Paper

The writing and publication of articles are significant in the development of a successful physician. By these he becomes known outside his own community. Through the reading of papers before societies, he makes himself and his work known to hundreds; through his publications, to thousands. Even more important, the writing of an article helps to make the writer better informed on the subject he discusses.

CAUSES FOR THE REJECTION OF MANUSCRIPTS

The majority of the manuscripts voluntarily offered to leading medical publications are returned. What are the reasons for their rejection?

Lack of Space. The great number of medical organizations that hold meetings produce thousands of papers which are usually submitted for publication. Lack of space is a primary cause for rejection. No matter how many papers the periodical may have on hand, however, a well prepared article which will appeal to a large proportion of readers—especially to general practitioners—is usually accepted. Indeed a wise editor will promptly accept a manuscript that offers new material and publish it ahead of others less significant. There are, however, causes for rejecting manuscripts other than lack of space.

Plethora of Material on One Subject. A plethora of material on the subject may be the reason for the return of papers on that subject—a situation likely to arise when a new treatment or theory is introduced or during and immediately following an epidemic of some disease. The introduction of arsphenamine, the sulfonamides, penicillin, streptomycin and the corticosteroids was followed by innumerable papers on those subjects. The tonsils and tonsillectomy and especially instruments used in performing tonsillectomies, have in the past been sadly overworked subjects. At various times endocrines, cancer, vitamins and medical economics have been the subjects in vogue.

Fancies vs. Facts. Conspicuous among the returned manuscripts are the productions of theorists who, without scientific knowledge but

Many a medical writer has expressed the view that such limitations interfere seriously with proper display of his individuality. Actually a writer may utilize his literary accomplishments and style to better advantage under some such orderly plan than when he gives free rein to his imagination and writes as the spirit moves him. One of my most respected teachers once said that the outward appearance of a manuscript, its arrangement, the quality of its spelling and punctuation and its choice of diction were excellent indications of the personal characteristics and scientific qualifications of the writer. The clinician or the research worker in the laboratory betrays in his literary contributions the possession of a scientific mind or the lack of it.

Competition is certainly as great in medical writing as in medical practice. The leading medical publications are overwhelmed with offers of material. Many of the periodicals devoted to medical specialties find it necessary to hold manuscripts from six months to a year or more before space can be found for their publication. Therefore the physician who launches into the arena a literary venture poorly clad, unsound in its constitution, limping in some of its sections and bruised by bad grammar may expect to have his manuscript returned with the statement, "The editor regrets . . ."

for printing Thus they do not elevate the tone of periodical literature or add to the knowledge of scientific medicine. The demand of medical societies for contributions to their programs is the only excuse that may be offered for the deficiencies of such manuscripts.

Specialists or consultants from the city frequently are invited by the smaller medical societies to present papers which in many cases are likely to be better prepared than those of members of the society whose usual purpose is merely to open a discussion. The visitor is anxious to make a good impression. He thus brings profit not only to others but also to himself Often, however such papers may rightly be dubbed "potboilers. They too, usually are written for reading not for printing

Frequently the secretary of a medical society sends a paper to an editor with the statement that it was received enthusiastically by the members of the society who voted that it be submitted for publication with their approval. The editor finds, to his astonishment, that the paper is ungrammatical, discursive or verbose, or poorly organized, without sequence in argument or in arrangement of the subject. The author's presentation, his inflections and, above all, his personality were responsible for the success of the manuscript the audience did not detect any fault and gave him applause and congratulations.

If an author is to be the only speaker his anxiety will be not as to how briefly he can present his subject but as to how he will fill the time he has been assigned Brevity conciseness, the elimination of unnecessary details and the avoidance of branching off into unrelated and irrelevant subjects and of the use of colloquial language will not give him concern. He will consider as appropriate and proper the relating of unimportant incidents in his experience for instance, a case report, an occasional aside and personal allusions In this he will be right. But he will not be right if he submits his article for publication without modification. Common courtesy compels his audience to remain and listen until he concludes his address, but if his paper *is* prolix or rambling it will have few readers. When the paper is published the personal equation does not enter and the courtesy of the listener has vanished

Many of the manuscripts rejected by medical periodicals have

purely on the basis of mental gymnastics, claim that they have solved problems. Unfortunately *some physicians will discuss scientific questions* concerning the fundamental and elementary principles of which they are entirely ignorant. Such papers usually are returned with the suggestion, circumspectly phrased, that an ounce of fact is worth a ton of theory. Every physician, of course, has the right to express opinions, to advance theories and to make known his discoveries. But the reader also has his rights, and the editor must regard these rights as paramount. The reader depends on the editor not to publish fiction for fact or fallacies which he—the reader—is not qualified to detect. The editor is supposed to have a knowledge of the author and his dependability that the reader cannot have.

Again and again papers have announced the discovery of a bacterial causative agent for an apparently noninfectious disease. If *the author is a man of well earned national repute and a frequent contributor* to medical literature, consideration must be given to the publication. But far more harm is done in the publication of fallacious matter than in procrastinating with, or in rejecting, a dozen papers offering new theories and new evidence which may be of value but which are not convincing.

Often a writer wishes to bring his manuscript personally to the editor and to stand by while the editor reads, with explanations of portions that the editor may not understand. Authors should remember that they cannot personally accompany each copy of the periodical to each subscriber.

The Medical Society Address. One of the chief causes of overabundance of medical periodical literature undoubtedly is the publication of papers that were written not for publication but to be read before a medical society. A large percentage of articles in medical journals are of this type. Frequently such articles are based on textbooks or on easily accessible literature and do not contain original observation, new thought or record of experience. They may review a subject in a more or less complete form and thus be useful to read before a society, since they constitute a basis for a general discussion, but *they may not* be worth publishing. As a rule they are not so well thought out nor so carefully written as are papers prepared especially

for printing. Thus they do not elevate the tone of periodical literature or add to the knowledge of scientific medicine. The demand of medical societies for contributions to their programs is the only excuse that may be offered for the deficiencies of such manuscripts.

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If an author is to be the only speaker, his anxiety will be not as to how briefly he can present his subject but as to how he will fill the time he has been assigned. Brevity, conciseness, the elimination of unnecessary details and the avoidance of branching off into unrelated and irrelevant subjects and of the use of colloquial language will not give him concern. He will consider as appropriate and proper the relating of unimportant incidents in his experience: for instance, a case report, an occasional aside and personal allusions. In this he will be right. But he will not be right if he submits his article for publication without modification. Common courtesy compels his audience to remain and listen until he concludes his address, but if his paper is prolix or rambling it will have few readers. When the paper is published the personal equation does not enter and the courtesy of the listener has vanished.

Many of the manuscripts rejected by medical periodicals have

been returned because they were prepared for reading before a society and evidently submitted for publication without revision. A manuscript that is fit to read is sometimes fit to print, but a manuscript that is fit to print is always fit to read

Length. An occasional reason for the return of a manuscript is its length. Like Einstein's theory as to space and time, however, length in this case is a matter of relativity A paper of 500 words may be long one of 5,000 may be short. The primary consideration is whether the material justifies the length. Usually manuscripts are unnecessarily long because of easily avoidable faults in construction, such as rambling verbosity and diffuseness.

A STANDARD

Manuscripts, therefore, are rejected by discriminating editors for various reasons relating to the suitability of the material and to its general construction. Of these, by far the most important is the material if the contribution is of value, other faults are susceptible of correction.

A manuscript should be suited to its audience. One easily intelligible and interesting to biologic chemists may have little appeal to otolaryngologists The details of a new technic for estimating uric acid will attract few general practitioners, who do not have the apparatus for performing the technic.

The standard set for papers presented in the various sections of the Scientific Assembly of the American Medical Association is significant. This standard provides that papers must (1) contain and establish positively new facts, modes of practice or principles of real value, (2) embody the results of well advised, original researches or (3) present so complete a review of the facts concerning any particular subject as to enable the reader to deduce therefrom legitimate, important conclusions.

2

Style

James Huneker said "Style cannot be taught. A good style is direct, plain and simple. The writer's keyboard is that humble camel, the dictionary." Quiller-Couch said it differently: "Style in writing is much the same thing as good manners in other human intercourse."

Dr Walter R. Bett, London, said in an address to the American Medical Writers' Association "The essence of style, as I see it, is the avoidance of (1) wind, (2) obscurity. Unfortunately medicine has a vocabulary of its own, using many professional terms which, though often inelegant, have a definite meaning and unavoidably have come to stay."

FINE, OR FANCY WRITING

"Whenever you feel an impulse to perpetrate a piece of exceptionally fine writing, obey it—whole-heartedly—and delete it before sending your manuscript to press. *Murder your darlings,*" said Quiller-Couch again. "Fine writing" is not especially a fault of medical literature, yet it occurs with amazing frequency. Following are examples from manuscripts submitted for publication.

> The pragmatic verity of this physiological concept of disease is established by its usefulness—with functional integrity our goal, the no-thoroughfare of unattainable structural integrity leaves us no longer at a therapeutic non-plus.

The above sounds like an erudite pronouncement, but does it mean anything?

> But what of the child? Who has championed its rights? Summoned against its will or without its consent into this world of trouble, pain, sickness and finally death, what Rousseau or Voltaire shall sound the tocsin, and call upon the infant mewling and puking in the nurse's arms, to demand that its own mother shall give it that lactic fluid that is its primal right. Bid it howl like all the heads of Cerberus against being condemned to partake of milk of cerulean hue contaminated by *Bacillus bulgaricus* prescribed by some adolescent and ardent disciple of Aesculapius. What Danton or Robespierre shall band together the masculone toddlers so that they may not be torn from the kindly face of mother earth, washed and dressed and sent to kindergarten where all of their play is so scientifically arranged by followers of Pestalozzi and Froebel

> that good fairies are unknown to them, and a "primrose beside a mossy bank, is to them but a primrose, nothing more. Where they are taught like the clown in Lady Browning's poem, "to pick simples, turning a broad back to the glory of the stars."

The author meant this seriously, for he wished to promote nursing of babies by their mothers It was part of a presidential address before a serious gathering and apparently was accumulated largely from Bartlett s 'Familiar Quotations

> The specificity and mathematical exactness of its effects in given dosages of which Ehrlich dreamed has gone glimmering among the pitfalls of spirochetal individuality and variation in human susceptibility

Here the error is not so obvious it lies in the use of words which sound extraordinarily well but which do not apply and therefore are confusing Note glimmering' and ' pitfalls '

A florid roseate style, full of polysyllabic, metaphorical phraseology, distracts the reader's attention. Seldom is it necessary in scientific writing to employ other than simple English terms to express an idea or to state a fact. The medical reader is acquainted with technical terms, but advantage should not be taken of this to make the sentence unduly polysyllabic. The use of literary allusions to give the impression of learning especially when the allusions are incorrect or have no direct relation to the subject discussed is a frequent fault For example

> The neurologist, with all of his knowledge of minutest anatomy was for years like the "man who stood on the bridge at midnight," not dreaming the dreams of a Longfellow but soliloquizing after the manner of the cynic on the vanity of all earthly things when lo the voice of the syphilographer first cried from out of the darkness Fear not, for I am with you always.

The following statement was submitted exactly as here set forth, with the request that it be published as written or returned to its author

> By septaecemia I mean any virulent infection where pathogenic organisms together with their toxines invade the constitution septic blood poison not less, no other
>
> I speak for free and unlimited drainage as free and unlimited as successful fortification against the savage on-rush of the enemy indicates. These drainages should be of gauze soaked in pure iodine. They should be renewed fre

quently until victory is assured. Pure, full strength iodine brought thus to impregnate the infected area, will diffuse itself as will no other remedy except terpentine, which is its only legitimate substitute. This brings it into close hand-to-hand combat with the invading enemy; they are immediately destroyed and there toxines neutralized. Iodine is so far superior to any other remedy in this conflict, that none other need be mentioned. It is the Field Marshall, the General Grant of such battles. The best of any other remedy save terpentine, it is to iodine in such battles as a popgun is to a machine gun.

It was returned!

And here a dermatologist, confronted by a request for an address on a special occasion, took his pen in hand, tore up his books on rhetoric and grammar and spoke freely:

> When Richet, whose talents were capitalized by the winnings of a Mediterranean gambler instead of by the sanctified swag of a field marshal of industry, discovered the nature of anaphylaxis, he started medical imagination on another flight into the hectic realms of hit or miss. The phenomenon he discovered was definite. It meant something, and still does. But the lily has been gilded by countless clumsy brushes, and the ultimate daub is allergy. God save the mark, as interpreted and applied today. The metaphors in this paragraph have been mixed intentionally in order to symbolize how confused a simple thing can become when the human mind strikes its stride. For a moment let us travel backwards the path of medical history and note the sign posts. First a philosophy based on the humors which colored etiological concepts until the middle ages. Then the great intellectual jolt by Harvey, a reveille that bounced Galenism out of its ancestral coma. Thereafter a scramble of ideas preeminently the doctrine of the diathesis, gouty in England, dartrous in France. Another jolt, Pasteur; another, Virchow; another, Ehrlich. Parasites, cell pathology, immunity! Is it remarkable that the medical world went crazy? And then Richet.
>
> And in the train of all these, first a germ for every illness, then a cell change for every nuance of illness, then an antibody in no man's land attempting a truce between the parasite and cell, to the ultimate victory of health; then a catchpenny word, catchpenny became a great idea, that of anaphylaxis, was bewarmed out of all recognition by the Rotarian minded in a world wide Gopher Prairie, while the instructed could only sit back in stunned contemplation. But a bit of optimism arose in them as they mused with Villon, "where are the snows of yesteryear?"
>
> And these snows, what are they. Humoral pathology in all its classic ingeniousness, the miasma, the mesmeric moon, allopathy, homeopathy, the spleen, black bile, yellow bile, dark blood, phlegm, the diatheses, malaria, idiosyncrasy, susceptibility, hypersusceptibility, all once were dignified in speculative etiology. Where are they today. And tomorrow where will be focal infections, where allergy. "Non omnis moriar," sang Horace, nor will these

either entirely die, but when they have survived the purgatory of misconstruction their lambent spirits, resurrected will lead medicine onward after the fools and opportunists have had their fling

If ever a subject warranted such *hyperbole*, allergy would but one s mind and ears have become hypersensitive to hyperbole.

Among typical violations of the rules against fine writing are the following usages

Gentleman" instead of "man "
Inaugurate" instead of "begin."
The patient sustained an injury" instead of "The patient was injured."
"Canine" instead of dog

VERBOSITY

Verbosity is a blemish in the writing of most people—one that makes reading tedious, mars diction and wastes space. This fault can be overcome easily, but in most instances not efficiently until after the paper has been written. Unless you have tried it, you will be astonished at the number of words, phrases, clauses, sentences and occasionally, paragraphs that can be deleted without affecting the meaning Deletions of unnecessary words always improve grammatical construction and style of expression and facilitate reading with understanding

Quiller-Couch, in his book entitled On the Art of Writing [1] devoted a chapter to verbiage Here is one of his illustrations

A clerk of a Board of Guardians had to record a minute relative to the burial of a pauper The minute reads

In the case of John Jenkins, deceased, the coffin provided was of the usual character "

Sir Arthur pulled the sentence to pieces. It is superfluous to say that Jenkins is deceased *the fact that he needs a coffin is sufficient* evidence. "In the case of" is superfluous, for Jenkins did not have a case he had, and needed only a coffin The coffin was not of the usual character, for coffins have no character The clerk should have said ' John Jenkins was provided with the usual coffin

An article by A. G Macdonell published in the London *Lancet*

[1] Quiller-Couch, Arthur· On the Art of Writing New York, G. P Putnam's Sons, 1916.

complimented Mr Winston Churchill, who in an interval between organizing the defense of the British Empire and winning the war found time to send a little memorandum to his colleagues in the Government, asking them to alter their style of writing the English language. In his letter Mr Churchill insisted that all official documents and memorandums should be short. He wrote "Let us have an end to such phrases as It is also of importance to bear in mind the following considerations, and again, consideration should be given to the possibility of carrying into effect "

Mr Macdonell continued, quoting the answer is in the affirmative' will now have to give place to the old-fashioned Anglo-Saxon word 'yes. The phrase, considering all the circumstances, it would probably be correct to answer this question in a contrary fashion, will have to give place to the old simple 'no.

"What a lot of beautiful phrases are going to be scrapped because of the Prime Minister" said Mr Macdonell. " 'With regard to the question as to whether for example. That will have to go In view of all the circumstances arising in and from. That is another Then there is, 'While admitting that the opinions expressed in our letter of the 24th ult. undoubtedly were expressed in that letter we cannot admit that those opinions were in any way binding on anyone connected with this department. "

Here are specimens from real life—from manuscripts submitted for publication

> I do not hesitate to say that in my opinion the gland in this case should not have been removed.

The first seven words are space takers. I have characterized this as a "running start." The author fills in with words while assembling a thought. The shorter sentence, "In this case in my opinion, the gland should not have been removed," was printed. Possibly in my opinion" also might have been deleted.

This from another author

> It has been a mooted question in the minds of microbiologists whether the gonococcus possesses a capsule.

The difference between a mooted question and one that is not mooted is problematic. ' In the minds of microbiologists carries the idea that only microbiologists are concerned The sentence was improved by divesting it of verbiage, and when printed it read

> It has been a question whether the gonococcus possesses a capsule.

The purist would have modified this still more and mentioned the microbiologist, making it read

> Microbiologists question whether the gonococcus possesses a capsule.

Thus from an article describing an apparatus

> *Physicians who have been using radium needles will readily appreciate the* difficulties encountered in threading them.

Who have been,' "will readily' and encountered were deleted and the sentence revised to read

> Physicians who use radium needles realize the difficulty of threading them.

The introduction to a case report read

> The following case is reported on account of the unusual occurrence of *Ascaris lumbricoides* in an adult of sufficient quantity to cause obstruction of small intestine, necessitating resection of intestine.
>
> Miss R. of A——— Ala., referred to me by Dr M S of ——— aged 36, single, admitted to the hospital at Albany Ala Nov 6 1947 suffering with intense pain in the abdomen, in the right hypochondriac region She was a poorly nourished woman and suffering great shock and presented all the symptoms of an intestinal obstruction

The first paragraph could be omitted by entitling the paper *Ascaris lumbricoides* Causing Obstruction of Intestine in an Adult Report of a Case in Which Resection Was Necessary

The report contains a large number of unnecessary words, from the point of view both of good writing and of facts necessary to adequate presentation With the unnecessary words bracketed for omission the report appears

> Miss R. [of A——— Ala. referred to me by Dr M S of ———] aged 36 [single, admitted to the hospital at Albany Ala] was seen on Nov 6, 1947 suffering with [intense] *abdominal pain in the right hypochondriac region* [She was a poorly nourished woman and suffering great shock and presented all the symptoms of] apparently due to intestinal obstruction

POOR GRAMMAR

The modern physician presumably has had the advantage of education in a university. When, therefore, an editor receives a manuscript from a physician in which sentence after sentence reveals grammatical faults that would disgrace a seventh grade student, he must surmise that the author has failed to give the writing of his article proper attention.

Here are some examples from manuscripts

> In meningococcic meningitis the optic nerve is involved as a perineuritis, there is not a papilloedema in contradistinction to the papilloedema the result of pressure from distention of the optic prolongation of the third ventricle pressing on the chiasmal cistern as occurs in meningitis of pyogenic origin.

> In general the larger abscesses had the higher counts, with one exception, 23 days after an unoperated appendicitis with 14 400 white blood cells and 3,000 cc. of pus.

> There were four cases of appendicitis, none of which had been operated except for a pelvic abscess in one

> Medulloblastomas develop almost invariably in children taking their origin just over the fourth ventricle.

> Scabies is also a frequency with the Negro, for he fails to realize the severity and the laxity of consulting a physician, resulting in rapid and wide dissemination of this highly contagious parasitic skin infection to others, and in many instances the starting of an epidemic.

> Her pelvis had been injured by being thrown from a motorcycle.

> Williams states that he induced the animals to take the hydrocarbon by licking it off a glass rod.

Here is a specimen of highly confused grammar from a chairman's address before one of the scientific sections of the American Medical Association

> We have had a sister specialized field, that of Ophthalmology. Very few of the older men still practicing but whom earlier in their careers did not embrace both fields, and I am not sure but when after they gravitated to one or the other they were not better men for having at one time applied their knowledge to both. There is something to be said against narrowing one's horizon too much. This may be debatable but there is an economic side that is not to be disputed. There are communities which are entitled to good service but are not large enough to support physicians devoting their attention to only ophthalmology or otolaryngology. Statistical studies are lacking but the

American Board of Otolaryngology some four years ago put out a question naire upon which the secretary Dr W P Wherry informs me warranted them to conclude, etc.

A dermatologist perpetrated this atrocity·

In conclusion, realizing the conflicting data that can be gathered from the literature on the subject of the treatment of lues co-existing with pulmonary tuberculosis, a program for such therapy has been presented, which, so far indicates that syphilis in the presence of pulmonary tuberculosis can be treated and though modified, treated adequately according to accepted standards of adequate treatment without any deleterious effect on the pulmonary lesion if caution and rigid scrutiny are enforced at all times, using all laboratory aids available including radiography and providing nothing no matter how trivial, is dismissed without diligent investigation

Here are further examples from manuscripts

Gonorrhea is extremely common due to the same attitude of mind in that same is not a disease requiring no treatment, but speaks of it as female trouble and continues to journey along with his discharge until it has subsided to return at a future time after it has become chronic.

The use of a syringe introduced with the plunger down and suction made at different depths should be done.

The history of these cases are usually rather obscure and are slow in their progress, which usually effectually wipes out the connection between them.

After a search in literature I can t find a case of General Paralysis in a woman that gave birth to an apparently normal child which after five months shows no stigmata of syphilis, and where the mother before delivery was demented and partially oriented has improved so much in five months after delivery that she is oriented in all spheres, carries on a fairly well connected conversation and takes care of her house satisfactorily

Such results should make physicians enthusiastic not only to do their part to make children safe from diphtheria but also to make the children of the communities safe in which they live.

These ' horrible examples of what a medical author may perpetrate are offered merely as exhibits, with the hope that the reader will be impressed with the necessity of carefully reading each sentence of his own manuscript to determine its grammatical purity Long involved ungrammatical sentences make the sequence of ideas difficult or impossible to follow and papers containing them are seldom read to the end

Most common among grammatical errors found in articles submitted for publication are the following:

Affect and Effect. These two words frequently are interchanged. "Affect" means *to act on*; "effect," *to bring about.*

The following quotations are from an editorial by William H. Woglom in *Cancer Research* 2:846 (Dec.) 1942.

> Question as to. Fowler calls this an ugly and needless formula.
>
> *The question arises as to whether the tumors were caused by the reactions.* [Wrong.]
> *The question arises whether or not the tumors were caused by the reactions.* [Right.]

> As large or larger than. This is a common fallacy. A moment's reflection will show that when the little afterthought and its enclosing commas have been deleted, "as large or larger than a plum" becomes "as large than a plum," which is manifestly absurd. The correct expression is "as large as, or larger than, a plum." This paragraph does not condone the careless habit of comparing the size of a lesion with that of some familiar object. Actual dimensions, expressed in the metric system, are, of course, preferred.
>
> Different than. The expression "different than" enjoys an enormous popularity; nevertheless, it is wrong. "Different from" is right.

Restrictive and Nonrestrictive Elements. Woolley offers a useful rule for determining whether a given clause is nonrestrictive (may be set off by commas) or restrictive (must not be set off by commas). He says that if the main assertion of the sentence retains its meaning when the clause is omitted, the clause is nonrestrictive. But if the omission changes the sense of the main assertion, the clause is restrictive. For example: "The directions that appeared on the label were wrong" (restrictive). "The directions, which had been meant for another patient, were wrong" (nonrestrictive). "Prefer those words which are short" (restrictive). "He quoted those words, which he had always remembered" (nonrestrictive).

CORRELATIVES

Conjunctions that are used in pairs are called correlatives. Examples are: not only . . . but also; both . . . and; either . . . or; neither . . . nor; not . . . or; whether . . . or.

These conjunctions should be followed by parallel elements: if a predicate follows one, a predicate should follow the other. If a prep-

ositional phrase follows one, a prepositional phrase should follow the other

The sentence "He was not only courteous to rich customers but also to poor ones" is faulty, as pointed out by Greever and Jones in their "Handbook of Writing" The phrases intended to be balanced against each other are "to rich customers and "to poor ones. Instead the word courteous" is balanced against "to poor ones" The correct form is "He was courteous not only to rich customers but also to poor ones.'

Incorrect is the following She could neither make up her mind to go nor could she decide to stay' The correct form is 'She could neither make up her mind to go nor decide to stay [Or] 'She could not make up her mind either to go or to stay'

One should not write "I talked both with Brown and Miller One conjunction is followed by a preposition and the other by a noun Correct usage is "I talked with both Brown and Miller' [Or] I talked both with Brown and with Miller

SLANG

Medicine is a dignified science. The attitude of the medical profession and of the public toward a scientific paper is dependent largely on the spirit in which the paper is written. Much of the dignity accruing to medicine today is dependent on the fact that physicians usually have presented their contributions in language suited to the subject. Few editors care to publish discussions of serious matters offered in a tone of levity The following are examples from papers submitted for publication indicating that the language of the street or of the preparation room is not suited to the discussion of surgical technic or of medical practice

> We have long passed the stage where any operation is considered a success if the patient survives, and in this particular one where lots of blood and two or three chunks of tissue extracted from the patient's pharynx means good throat surgery

> A surgeon may be a 'whiz in the abdomen or in grafting bones, but a proverbial "bull in a china shop" in the throat.

> The G U man has appropriated the term "syphilis, but the fact that the initial lesion is frequently on the genitals does not make the disease other than systemic.

He will not attempt an iridectomy or cataract extraction, but seemingly feels T & A's are "duck soup" whereas as a matter of fact the finished specialist realizes there is little difference in the skill required for all when well done.

I recall one of my first stricture cases (a woman) who had gone the rounds for three years. She spent a week in a hospital in Richmond, seeking a diagnosis. She did not have symptoms referable to the urinary tract and her physician did not cystoscope her. She then went to Asheville for a six weeks' dietary treatment, and so on. She finally came to one of my associates, who requested cystoscopy. We were unable to get a filiform into the right ureter. We cystoscoped her every day for five days, finally getting a No. 2 olive-tipped bougie to enter.

This was a complicated affair of four days' duration.

KEEPING SAME POINT OF VIEW THROUGHOUT PAPER

Tenses. Writers often skip from one tense to another, even within a paragraph, which may confuse the reader. Tenses should be consistent, except that scientific truths are expressed in the present tense. For example, one would say: "A diagnosis of appendicitis was considered, as the appendix is sometimes eccentrically located." To say "was some times" here would be absurd.

Woglom emphasizes that good reason does not exist for describing experiments in the past tense and microscopic morphology in the present, though this is common practice. Perhaps safest is to keep to the past tense in all descriptive matter. In the publications of the American Medical Association the past tense is used for verbs of saying or recording, except in reviews of the literature covering a single year, where the author may use the present tense if he prefers it.

A related difficulty lies in the expressions "he believed" and "he believes." It may be impossible to determine whether the view cited is still held and therefore whether "he believes" is correct. "He believed," on the other hand, may imply that the opinion has been abandoned. The difficulty can be avoided as a rule by changing the verb of thinking to a verb of saying, so that, for instance, "Brown considered" becomes "Brown expressed the opinion." In reviews of recent literature with verbs of saying in the present tense and in papers in which an author discusses recent work by men whose opinions he obviously knows well, "he believes" is of course permissible.

ositional phrase follows one, a prepositional phrase should follow the other

The sentence 'He was not only courteous to rich customers but also to poor ones' is faulty, as pointed out by Greever and Jones in their "Handbook of Writing" The phrases intended to be balanced against each other are 'to rich customers' and "to poor ones. Instead the word "courteous" is balanced against 'to poor ones.' The correct form is 'He was courteous not only to rich customers but also to poor ones.'

Incorrect is the following 'She could neither make up her mind to go nor could she decide to stay" The correct form is "She could neither make up her mind to go nor decide to stay [Or] 'She could not make up her mind either to go or to stay

One should not write "I talked both with Brown and Miller One conjunction is followed by a preposition and the other by a noun Correct usage is "I talked with both Brown and Miller [Or] I talked both with Brown and with Miller

SLANG

*Medicine is a dignified science. The attitude of the medical pro*fession and of the public toward a scientific paper is dependent largely on the spirit in which the paper is written. Much of the dignity accruing to medicine today is dependent on the fact that physicians usually have presented their contributions in language suited to the subject. Few editors care to publish discussions of serious matters offered in a tone of levity The following are examples from papers submitted for publication, indicating that the language of the street *or of the preparation room is not suited to the discussion of surgical* technic or of medical practice

> We have long passed the stage where any operation is considered a success if the patient survives, and in this particular one where lots of blood and two or three chunks of tissue extracted from the patient's pharynx means good throat surgery

> A surgeon may be a "whiz" in the abdomen or in grafting bones, but a proverbial "bull in a china shop" in the throat.

> The G U man has appropriated the term syphilis," but the fact that the initial lesion is frequently on the genitals does not make the disease other than systemic.

of the quotation might be forced to consult the original article to determine whether more than one lesion was present in each case

There can be no confusion if the sentence reads

> In these cases the lesion began on the face and extended downward, finally covering the neck and the chest.

USE OF NOUNS AS ADJECTIVES

Practically all important publications avoid excessive use of nouns as adjectives to modify other nouns. This policy should not be interpreted as a series of "Thou shalt not s" with regard to specific phrases. We wish to combat the tendency to eliminate adjectives from the language by supplanting them with nouns. The following excerpts from an article by Lord Dunsany in the *Atlantic Monthly*[3] state the problem admirably:

> The decay that is affecting our language is taking place among adjectives so much so that many of these necessary things have already died. One cannot prove that an adjective is dead merely because in so many hundred pages it never appears: the proof is when the need of that particular adjective arises and it is not used, a noun being thrown in to take its place as a sheet of paper may stop a hole in a window in the absence of a pane of glass.
>
> If you read of "a strange man in an expensive car" that is no proof that other adjectives equally suitable are dead, but if you read of "a mystery man in a luxury car" that proves that the adjectives "mysterious" and "luxurious" have decayed away for no one would otherwise use this lumber of nouns. There is, of course, no lack of meaning in a mystery man in a luxury car" only a lack of grace. I imagine that hundreds of things had names among savages thousand years before those graces appeared by which the Romans, for instance built their sentences: and I think that the deepness of the German forests, which the legions did not easily penetrate is probably responsible for the German tendency to use heaps of nouns to this day a clumsiness unknown in France and Italy
>
> When meaning disappears from modern sentences is the moment that a third noun is added to the heap, or even an honest adjective as for instance if we were to write a great luxury man, it would not be quite clear whether we were intending a man who lived in great luxury or whether a luxury man of large size. If instead of the adjective great" we have yet another noun, the confusion is liable to be even worse. There are no landmarks to guide one through this confusion, for in a single copy of the *Times* I read two advertisements, the first of them spoke of "best position seats"—obviously the hyphen,

[3] Dunsany Edward: Decay in the language, Atlantic Monthly 157:360-362 (March) 1936

Singular and Plural Forms. Serious misunderstanding as well as an impression that an author is careless may be caused by failure to retain the same approach throughout a paper especially in regard to the use of singular and plural forms. You begin by speaking of 'the eye' and 'the kidney' and later find yourself mentioning "the frontal lobes and 'the lungs.' Often a manuscript editor working on a paper which has been accepted finds himself confronted by phrases such as these "The fundus seemed normal In the scleras and corneas When organs are spoken of in a general sense, they should be referred to consistently in either the singular or the plural, and when specific observations are described it should be stated whether one (if so, which) or both of the organs were examined or were affected.

Even more confusion is caused by a paragraph such as the following which was taken from a manuscript received for publication

> In the thorax the intercostal or phrenic nerves may give rise to a neurofibroma these often attaining a considerable size. The benignity of the tumor makes surgical removal a most satisfying procedure, and one who is familiar with operations on the thoracic wall and in the chest cavities has little difficulty in completely enucleating these growths. An example of neurofibroma of an intercostal nerve is seen in case 21 The relative softness of the lungs or other intrathoracic structures often allows one of these neoplasms to readily expand and assume a great size. Harrington has reported 14 cases of mediastinal or intrathoracic perineural fibroblastomata and his success in treating these lesions again emphasizes the desirability of recognizing such benign growths and attempting surgical extirpation Of 46 various intrathoracic *tumors removed at operation, this author classified 14 of them as of nerve* sheath origin and 10 of these occurred in the posterior mediastinum. The presence of a neurofibroma in the posterior mediastinum and in the neck may *lead to dumb-bell-shaped tumors which pass through into the spinal canal.*

A similar faulty construction, not quite so confusing but equally illogical and *more frequent, follows*

> In these cases the lesions [it is understood that there was one in each case] began on the face and extended downward, finally covering the neck and the chest.

The author may argue that if there are cases there are also lesions rather than a lesion But are there not also faces, necks and chests? Moreover, if another author should quote only this passage, the reader

severe inhibitions, will partly depend upon the strength of his ego and the degree of his adaptation to reality which regulates those imaginary requirements, and partly upon whether the tasks laid upon him are too exacting and the discrepancy between his destructive and constructive omnipotence exceeds a certain limit."

It should be emphasized that the majority of psychiatrists write clearly and sensibly. But there is still too much gobbledygook and too much "excess ideological barrage," as Whitehorn called it in his presidential address. The reasons for this are undoubtedly numerous and complex. A few points, however suggest themselves immediately:

1. Some of us seem to fear simplicity lest it be mistaken for mediocrity.

2. There seems to be some apprehension that the public will not be impressed by clear and direct statements made in everyday language. After all, everybody can say things simply, and isn't the specialist under obligation to display his erudition for the sake of professional prestige?

3. The advent of the "deep" psychologies has instilled in some of us a dread of being branded as "superficial" if we do not couch our talk in some sort of professional jargon. This has led some to the pseudo-logical conclusion that a goodly portion of balderdash will assure one's reputation as an expert in "depth."

4. One-sided training in specialized techniques has caused some of us to overrate their value out of all proportion to the broad field of psychiatry. Limited experience has resulted in a limited form of expression, often compensated by garrulous repetitiousness. Douglas M. Kelley, in a recent publication in this Journal, has brilliantly demonstrated the abuses of Rorschach interpretations through "generalities, multiordinal terms, superficial description, and temperament depictions that can apply to anybody." Similar criticism can be leveled at the practitioners of other restricted methods applied out of context with clinical and social "reality."

I have collected a few examples of gobbledygook from recently published books and articles:

> during its earliest years the child thinks primarily in terms of visual images. The parents and their substitutes come to form composite images in the mind of the child, and these images or "imagos" persist for a lifetime. [Who needs that word "imagos"?]

> The impulse neurosis adds nothing new to our study of psychodynamics. It combines the ego-syntonic character of psychopathy with the ritualistic, circumscribed symptomatology of compulsive obsessive state. [Isn't that clear?]

> There is little heuristic value in erecting a specific hierarchy of the neuroses and psychoses as correlated to multiple stage account of the development and vicissitudes of the Libido. Instead it can be contended on both theoretic and clinical grounds ( ) that the so-called Libidinal stages of development have a

which was not there, should be imagined between the first word and the second but there are no rules for this clumsy game because the other advertisement spoke of a "great equality myth, and in that case the hyphen had to be understood between the second word and the third.

It may be quite clear to my readers why the hyphen should have come in each case where I have said that it should but I have had the advantage of reading the context, and have worked it out in that way The alternative to reading the context is to know exactly which of several ambiguities the writer intends with his row of nouns, and for this purpose you must *obviously know* just what he intends to say Does not this mean that in the language of jumbled nouns you can only say what everyone knows already? Then the writer with something new to say will not be understood, even when he has got a hearing

GOBBLEDYGOOK IN MEDICAL WRITING

Gobbledygook" is an American colloquialism defined as speech or exposition that is obscured by excessive use of technical terminology involved sentences, and big words.

In a letter to the editor of the *American Journal of Psychiatry* (Gobbledygook in psychiatric writing Am. J Psychiat., December, 1951 p 474), a writer signing himself L. K. said

New words and concise delineations cannot be avoided and are often indispensable. But involved, long-winded redundant, tautological, obfuscating language, to which the name gobbledygook has been applied, can and should be avoided In analyzing some of the glaring transgressions, it is not always easy to distinguish between literary depositions of muddled thinkers and clumsy phrasing by clear thinkers.

A few years ago, *The New Yorker* picked up a passage from an article in a psychiatric journal. The attitudes and manners shown by the British in tea drinking, eating smoking, and general behavior suggested to the author that it is possible to detect in the English taken as a nation, the cultivation of oral sucking impulses and the inhibition of aggression of a more direct and brutal type, from biting onwards. Given certain circumstances, these repressions are lifted, and the super-ego is able to tolerate the exercise of the corresponding functions. The amused editor asked *One lump or two lumps, Doctor?*

Here is a passage—a sentence longer even than the yawn it may evoke—taken from a book that has had a wide circulation

"If the restitution required of the individual necessitates a very strong sense of constructive omnipotence—as, for instance that he shall make complete restitution towards both parents and *towards his brothers and sisters*, etc and, by displacement, towards other objects and even the entire world– then, whether he will do great things in life and whether the development of his ego and of his sexual life will be successful, or whether *he will fall* a victim to

Such writing defeats the very purpose of communication—to convey information clearly. The amount of carelessly written papers overwhelms every one; the quality debases the standards of beginners and the quantity obstructs and exhausts every honest and discriminating worker. I know of no editor of any medical journal who cannot at any time testify to the sheer incompetence of the writing in an inexcusable proportion of the papers submitted for publication. And even with the benefit of hours of editorial improvement, the medical literature of today exemplifies all too fully the biological adage that life is choked by its own secretions.

temporal existence only in so far as the growing infant becomes physiologically capable of expressing them, and (b) that in later life the "psychological" counterparts of these libidinal organ-cathexes overlap and mingle in a way that makes analysis of complex psychotic reactions in terms of simple "orality" "anality" or "genitality" analogous to committing mayhem on the facts. [As they say in the international congresses, "please translate."]

One glossary of psychiatric terms yields such weird words as

homilophobia—a fear of sermons
necromimesis—acting as though dead
osphresiophilia—a morbid fascination with odors
peniaphobia—a morbid dread of poverty

For some time I have argued with publishers that a book which requires a glossary should be declined on the ground that it needs to be thoroughly edited if not rewritten

Big words, complex sentences and extraordinary diction seem to have become the ordinary language of psychiatry

ACQUIRING A GOOD STYLE

The formula for acquiring a good literary style has two ingredients reading and practice. Extensive reading of the works of good writers invariably will increase the vocabulary and improve the style.

A style that flows attractively from the pen comes only as the result of much practice. A well constructed phrase said Flaubert adapts itself to the rhythm of respiration Clauses and phrases of even length permit proper emphasis

Write and rewrite rewrite again and then revise!

Dr Allen Gregg Director for the Medical Sciences, Rockefeller Foundation, said in a commencement address delivered at the Jefferson Medical College in 1943

> The common level of medical and scientific writing in our professional books and journals already constitutes the most serious internal limitation to medical education and research. The usual level of professional writing is painful not merely to editors. Even after passing editorial filters, the virus of wretched writing can inflame, insult, and exhaust a clear minded man. Such writing is verbose and repetitious. It is awkward and tiresome. What time it can spare from being vague it devotes to being inaccurate. By sheer carelessness of phraseology the author belies his probable meaning by actual misstatement.

position but also of scientific knowledge. The physician who is well informed will not give all the minutiae of a normal blood count or of a normal differential leukocyte count. He will not provide a perhaps highly entertaining but valueless account of the various illnesses suffered by all the members of the patient's family. He will not say that the patient had the usual illnesses of childhood, but, if any of these illnesses had a bearing on the condition, he will state what the illness was and about when it occurred. The elimination from the case report of nonessential material will make a clinical picture that will be as striking as a marble bas-relief in its proper emphasis on various features and in its subduing of background.

Here are some examples of irrelevant material included in case reports. The irrelevancies are italicized.

> *At 11:45 p.m. near the outskirts of a small village, 20 miles away,* an infant was born to a primiparous *mother on Thursday, Oct. 14, 1937. The delivery occurred on a trundle bed in a darkened corner of a room, illuminated only with a single kerosene lamp.* The attending physician, *a rural practitioner, had been with many mothers under similar circumstances. As he leaned over to clamp, cut and ligate the cord, his hand* felt a mass lying on the front and side of the child's abdomen. The mass was soft and pliable, and *as he ran his experienced fingers over its surface* he located the cord emerging *directly* from the mass *itself.*
>
> *He carried the child over to the lamp and to his amazement* there was present on its abdomen a large part of its intestine. *It was readily seen and felt through the thin transparent membrane which* close inspection revealed *to be* the cord itself enormously dilated. The intestines protruded along the course of the cord *a distance of some* 5 or 6 inches. The mass *itself* was the size of a large coconut.
>
> This newly born baby was delivered in precipitate labor while the mother sat on the stool, *supported one on either side by two neighboring women.*
>
> *On my arrival at the home (a private home) all indications pointed to very unusual circumstances—I hastily entered the home and found just such a condition as stated in my offering. Collecting my wits included many things and wondering what step to make first, while going thru a sterilizing process with the help of the husband who had arrived a short time previously I planned an examination to determine if the babe was delivered and if still alive. The husband raised the mother sufficiently to afford* a hasty examination which revealed baby *was delivered and* was dead from drowning. We placed them in a warm bed, *the husband carrying the mother while I supported the babe. This done* I hastily divided the Funis. *Placed the babe in a warm room upon a table.*

Nowhere are negative observations more frequently encountered than in the recapitulation of autopsy records. Sometimes such reports are practically the transcript of the stenographer's record, dictated as the examination progressed. In most instances it is sufficient to present

records that were hastily jotted down at the time the various events occurred The jerky, telegraphic style of the record sheet may actually be redundant. For example

> Patient, A178493 *Giuseppe Roverano. Age 35 years. Color* white. Nationality Italian Occupation, laborer Condition married Complaint, inflammatory rheumatism. Entered Brown Hospital Jan. 17 1948.

A shorter and more satisfactory description would be

> G R. an Italian laborer aged 35, married, entered the Brown Hospital on Jan. 17 1948 complaining of inflammatory rheumatism.

Laboratory and other reports made by someone other than the author, which have not been published elsewhere, should not be copied in their original form but should be edited to conform to the style of the rest of the case report.

Negative Observations and Unnecessary Material The hospital record number is not required in a case report. While it may serve a purpose within the hospital to identify the case for the members of the staff it means nothing to the reader Further it may give rise to a false impression as to the number of cases which have been observed in the institution by the physician.

Mention of observations that are unimportant or that do not bear on the clinical history of the case should be avoided. Negative results are of value in few instances, and they should be cited only when necessary An author who reports a case of compound fracture of the femur need not trouble to say that the lips, throat and ears were normal If however you are reporting a case of arthritis, it may be worth while to say that examination of the heart did not yield observations of importance, because pathologic changes in the heart may be associated with arthritis. *Mrs. J J married is redundant, for* 'Mrs. indicates marriage, but Mrs. J J, a widow conveys additional social information that may have some bearing on the case

In an excellent essay, On Case Reports, Raymond Whitehead of the University of Manchester writes The important point is not whether a result is positive, negative or inconclusive, but whether the information bears on the case.

Elimination of all negative or irrelevant material from a report is a valuable exercise from the point of view not only of good English com

the following sentence "A case of myxedema is reported, and the literature is reviewed."

Coined Abbreviations. In many institutions certain abbreviations are customarily used in case records; this is excusable, for it saves space and makes reference easy for those who know what the abbreviations mean. In material for publication, abbreviations should be avoided, and the general use of original or coined abbreviations should not be tolerated. "W. D. & N." for "well developed and nourished," "H. & L.O.K." signifying "heart and lungs normal" and "L.L.L.N.R." for "left lower lobe no rales" are abominations. The manuscript editor who is confronted with such hieroglyphics can sympathize with the diagnosis "G.O.K." which, it is said, appeared on many case records in hospitals during the war signifying "God only knows." Abbreviations not in dictionaries or in ordinary textbooks are permissible only in tables; there, if not obvious, they should be explained in footnotes. Such abbreviations as ACTH for adrenocorticotropic hormone come into the language but may be replaced by a name like corticotropin or the trade name Acthar.

Form of the Report. The simple case report may begin at once with the history and record or, preferably, may be introduced with a statement of why the author considers it desirable to report the case. If the latter method is followed, the author will aid the reader and the manuscript editor by clearly indicating the separation in the following manner:

> There is no record of chronic poisoning from potassium nitrate in standard works on toxicology or therapeutics, nor does a fairly extensive search of the literature reveal any report of such poisoning.
>
> REPORT OF CASE
>
> A farmer aged 57, whose general health had always been excellent, was first seen by me on Feb. 20, 1947. He appeared acutely ill.

In the report of a case of any length, the description may be broken up by side headings. Paragraphs may be devoted to the patient's history, family history, physical examination, laboratory examination, course, results and, if any, postmortem observations.

only the anatomic diagnosis, with all the pathologic conditions, and then to give in detail the description of the particular pathologic changes with which the discussion is concerned.

Confusion of Time A common fault in case reports is indefiniteness in sequence of events as to time it is illustrated in the following skeleton of a case report submitted for publication

CASE 3 A. D Feb. 8 1947 Hairpin in the bladder and renal infection. Girl, 22 years old, first seen three years ago. Two years ago her kidney was explored. A year ago this patient went to the city hospital. Soon after this I heard of her as a patient with marked polyuria. From the *early part of the summer until August she had retention of urine and had to be* catheterized. Five weeks ago she allowed a friend to attempt catheterization I saw her three weeks ago and found the hairpin I was not then allowed to remove it. On February 3 she told me that the day before she had had pain in the left renal region. Examination next day showed marked cystitis. The pin was removed. Within four days the patient was discharged.

January 1948 Two weeks after leaving the hospital another pin was found in the bladder

And here is another example

He was born and lived in Turkey until he was 12, when he came to the United States. He spent two years in Boston, and the remainder of the time in California. He had had malaria 10 years ago and typhoid two years ago. About four years ago his skin began to itch whenever he became warm.

As a paper may not be published for months after it is prepared the time should be stated specifically instead of being referred to as three, five or nine months or years ago

Tense Tenses should be used consistently A frequent error occurs when the author follows a case report with a description of a pathologic specimen or of a section viewed under the microscope. Often the history of the case is given in the past tense and the pathologic report in the present tense. These should be uniform. The simplest way usually is to use the past tense throughout.

In the description of observations that have been continued it is logical to regard the time of writing as the present and to say for instance, At the time of writing the patient is well

In the summary of a paper the present tense should be used as in

The Essay

Manuscripts of the essay type include presidential addresses, forecasts as to the future of medicine and discussions of the economic problems and the social status of the physician—more or less exhaustive discussions of selected subjects in which physicians are interested as citizens and as professional men rather than as scientists. They are obviously more literary than the usual contributions, and the physician may allow himself a latitude in literary allusion, diction and personal reference not permissible in the ordinary scientific paper. The published addresses of Sir William Osler, Sir Clifford Allbutt, S. Weir Mitchell, Oliver Wendell Holmes, William S. Thayer, Harvey Cushing, Da Costa and Berkeley Moynihan are examples of this type.

The Report of Research

No better outline of the form to be followed in a report of medical research is available than that by Dr. Charles Singer described in the quotation at the beginning of this chapter. Emphasis may be placed again on the necessity of rigid elimination of nonessentials. The problem should be stated clearly; the literary references should bear directly on the problem; the protocols of experiments should include only experiments that yielded actual information; clinical records and autopsy reports should be pruned religiously; there should be a well organized summary; and the conclusions should be succinct and include only statements that are warranted by previous knowledge and the present observations.

One of the most common faults is duplication. Frequently a report of research is accompanied by extensive charts and tabulations that repeat material brought out in the text. Often a paper is received in which the observations are fully stated in the protocols of the experiments, summed up in a running account in the summary, restated and resummed up in extensive tables and again pictured graphically in intricate charts. The procedure is much like presenting a diner with three desserts composed of strawberries: fresh strawberries, strawberry preserves and strawberry pie.

In longer manuscripts, in which several or many cases are briefly reported merely as a matter of record, a single paragraph may be given to each case.

The Description of a New Instrument

Ordinarily it is sufficient to describe an instrument in as few words as possible, depending largely on the accompanying illustrations of the device or apparatus to tell the story. A photograph of the device usually is better than a freehand drawing, although a drawing by a competent artist is more easily reproduced. A diagrammatic line drawing and a photograph of the device in use generally are most satisfactory. The publication of a description of an apparatus that has not been manufactured and used is to be condemned.

The Clinical Note or Suggestion

In the course of his practice, a physician frequently discovers minor clinical signs and symptoms of importance, short cuts in procedure, *bizarre occurrences* or *similar matters* of general interest that are worth publishing. They may not merit a thorough report; rather, they may be covered in letters to the editor or in brief clinical suggestions occupying a paragraph. Such suggestions or practical paragraphs are read by almost every reader whereas many would pay little or no attention to a long article.

The Review of Literature

One of the most valuable—and sometimes the most useless, depending on how it is prepared—types of contribution is the review of knowledge on a given subject. If the review is made by one who is familiar with the literature, and who has had sufficient experience to select with judgment and to discard with even more care, the contribution *may be important. If however the work is done by* an assistant who has been instructed to obtain references to the available literature on the subject and to arrange these in chronologic or some other order, it is likely to be a hodgepodge and of wearisome length. It is manifestly impossible to abstract all the literature in the course of a brief article on such a subject as tuberculosis, syphilis or influenza during an epidemic.

The summary should recapitulate observations reported or repeat statements of fact. The writer should not say simply that certain phases of a subject are discussed or that a certain type of case is reported. Such a summary wastes space without giving additional information or emphasizing significant facts. Manuscript editors usually will delete sentences offered as a summary which are without importance in emphasizing the material in the article itself.

The conclusions—the deductions drawn from the cases presented, the experiments or other facts set forth—appear at the close. Conclusions are of special value, particularly since they lead to wider abstracting. Conclusions are "fat" for abstracters and for editors who are looking for "fillers." If an author is anxious to have his conclusions reproduced by other journals, he should rigidly condense them, yet make them clearly reflect his premises and deductions.

Conclusions, which usually are more or less coordinate in structure and substance, frequently gain effectiveness by being numbered. Items in a summary or in a combination of summary and conclusions, however, as a rule should not be numbered, for they are not coordinate. In the following example the numbering is correct. Had all the paragraphs been numbered consecutively the effect would be illogical and misleading.

> A series of 103 cases of various functional dermatoses and 7 cases of true eczema were studied.
>
> Every patient was subjected to epidermal and dermal testing by means of patch tests and scratch tests performed with a standard set of 4 substances.
>
> From the data obtained we believe that the following conclusions may be drawn:
>
> 1. Epidermal hypersensitivity as manifested by a positive reaction to a patch test is present in patients with eczema-dermatitis venenata as an unchanging reaction to the causative substance.
>
> 2. Epidermal hypersensitivity is rarely if ever present in patients with functional dermatoses.
>
> 3. Dermal hypersensitivity as manifested by a positive reaction to a scratch test is noted occasionally in patients with eczema, and the causative substance is frequently the cause of an accompanying hay fever or asthma.

The value of the summary and the conclusions is appreciated less by the average writer than by the average reader. The busy physician

The Complete Consideration of a Single Disease

Textbooks have long since made familiar the logical sequence *definition, etiology pathology epidemiology, symptoms, diagnosis, differential diagnosis, prognosis, prophylaxis* and *treatment* From time to time it is desirable to take up a single disease and to consider it under all these headings. Such a study may be made in the preparation of textbook material or of an article to be included in a system of medicine. Again, the sudden outbreak in epidemic form of an unusual illness or even of some common disease may make it worth while to review the subject completely for periodical publication Ordinarily the writer will find it satisfactory to confine himself to the single phase of the disease which he wishes to discuss and on which he has something new to offer This caution may seem unnecessary, but many manuscripts are received in which the reporting of a single new observation has been made an occasion to repeat much material that is easily available in the ordinary textbook.

The Monograph

A monograph is a special treatise on a single subject. Usually after an author has made an extensive series of investigations on some topic, he desires to present all the material in a single publication In preparing a monograph, he will do well to outline all the material in order to avoid duplication Only the special periodicals publish monographs, and because of their character the author may be asked to bear a portion of the expense.

SUMMARY AND CONCLUSIONS

The summary—a brief abstract of the article—may appear at the beginning or at the close. Not every article should be summarized Those of more than average length (more than 1,500 words) those which involve much description of detail and technic and those which aim at a complete survey of literature on the particular subject demand a summary A brief digest of a long article in the introductory paragraph often will stimulate someone to read the article who other wise would not

should either have an accurate typewritten copy made of all material he may wish to quote when he consults the book or periodical or if this is not feasible, should have the chosen passages rechecked when the final copy of his manuscript is being made.

Laboratory reports made by other physicians, personal communications and other material which has not been published elsewhere may and should, be edited in the same style as that used for the rest of the paper Such material usually is not written for publication and is not prepared as carefully as it would have been had the writer known it would appear in print under his name.

looks at the title to see whether the subject interests him, glances at the subheads to see the phases considered and then turns to the summary to get the gist of the article. If he finds that he is especially interested, he then reads the whole paper

NOTES OF ACKNOWLEDGMENT

Expressions of gratitude to all the persons who have given assistance, advice or encouragement to an author in his work are without scientific value and therefore out of place in the pages of a scientific journal. They may, however, be included in the author's reprints. If a person has rendered service of major importance, his name should be included with those of the authors of the paper If he is thought to deserve not quite so much prominence, a form such as the following may be used

JOHN BROWN M.D

WITH THE ASSISTANCE OF JAMES JONES, M.A.

If only a slight contribution has been made, a note may be included (at the beginning or at the end of the article or as a footnote) which gives a simple statement of the service rendered, for instance, "Dr ——— prepared the photographs."

A statement that another physician gave "advice," "encouragement" or "inspiration" is not sufficiently specific to be included The definite part of the work which he performed should be mentioned.

QUOTED MATERIAL

When material is quoted from the work of another author the laws governing copyrights require that permission be secured from the copyright holder and courtesy would suggest also from the author It is impossible for an editor who accepts many papers each week to ask in each instance if written permission has been secured The responsibility must rest with the author

Material which is quoted *should be quoted exactly unless there are* obvious typographic errors Frequently when an author is preparing an article he copies essential statements with lead pencil Later he uses the notes verbatim in his paper forgetting that they may not have been copied accurately A physician who wishes to use quotations

Each Other." What could an indexer or cataloguer do with such a title? This title should be rewritten thus "Coefficient of Thermal Conductivity of Eye and Orbit Measured with Application of Cold."

Ambiguity Misleading titles should be avoided. "A New Chloroform Danger" was the caption of another manuscript. In looking up references to the literature on the dangers of anesthesia a physician would have been attracted by the title, and after laboriously searching for the article he would have discovered that he had been misled. The title became "Danger in Similarity of Ether and Chloroform Containers," which stated the subject of the communication. First impressions are lasting: a catchy title catches readers. The title ought to be carefully thought out and should give a clear indication of what is to come.

The following titles, taken from papers published in medical periodicals, are examples of the ambiguous types which cause distress to those responsible for indexing medical literature

Foci of Infections Above Collar Bone and Importance of Their Early Recognition	Idle Thoughts on Medical Education
	Render unto Caesar
	Macedonian Call
Borderline Cases	School Follicles
"Ideas in" Syphilology	Curing, from Yon to Hither
Odd Experience of a Young Practitioner	Clinical Observations
	Suggestions
The Emergency Abdomen	Sepelire Malum Resuscitare Bonum
The Abused Cervix	Some Stomachs I Have Met

The Subtitle If it is necessary to include much material in the title, it should be divided into a main title and a subtitle. For example, the title "A Precise and Simple Method for Counting of Blood Cells and Bacteria Without a Special Chamber" became "Counting of Blood Cells and Bacteria," with the subtitle "A Precise and Simple Method Without a Special Chamber" "Disturbances of Conditioned Reflexes Observed in Study of Functional Changes in the Brain of the Dog After Removal of the Cerebral Blood Supply in This Case by Ligation of the Arteries Supplying It" might be expressed as a main title, "Functional Changes in the Brain of the Dog After Reduction of Its Blood Supply" and a subtitle, "Disturbances of Conditioned Reflexes After Ligation of Arteries." Other examples are given on pages 36 and 37

4

Construction of the Manuscript

Ideally, the framework of a paper should be outlined before writing is begun This framework may include headings for short imaginary chapters, each chapter covering a subdivision of the subject. If the *article is to be elaborate, each heading may be further subdivided* This will avoid the repetition of facts or ideas—a common fault A suitable title, informative subheads, a clear summary and cogent conclusions represent the framework of a well constructed paper

THE TITLE

The title is more important than the average medical writer realizes. If an author wants his contribution to become a part of the literature on the subject, he must give it a name that will identify it, that is descriptive. Thousands of papers lie buried in medical literature because their titles did not designate the subjects. The title should be short, but inclusiveness should not be sacrificed for brevity Often a long title may seem necessary, although usually brevity and clearness may be gained by the use of a main title and a subtitle. A title should consist of not more than 90 letters, counting spaces between words *as letters.*

Hardly anyone remembers such unwieldy titles as Brain Tumor of Psychomotor Area, Causing Jacksonian and Generalized Con vulsions, Visual Hallucinations Somatic Operation Recovery, Mental and Physical With that title, why write a paper? Another unwieldy example ' Erythromelalgia Report of a Case Presenting Peripheral Vasomotor Disturbances in the Hands and Feet for Twelve Years, Reaching a Climax in Eight Years, with Recovery Following Treatment by Adrenal Substance. These two examples are taken from published papers. The following was the original title of a paper that was submitted for publication To Obtain Graphs Showing the Rapidity and Degree of Decrease in Temperature in the Eye and Orbit Produced by the External Application of a Given Degree of Cold over a Given Area for a Given Time, and a Numerical Expression, at Least Approximate, of the Relation of These Variables to

IMPROVED TITLES

LOW, OR CERVICAL, CESAREAN SECTION (LAPAROTRACHELOTOMY)

THREE HUNDRED AND THIRTY OPERATIONS, WITH TWO DEATHS

DERMATITIS GANGRENOSA INFANTUM

REPORT OF A CASE

ACNITIS WITH PARTICULAR REFERENCE TO THE BACTERIOLOGIC FINDINGS

REPORT OF A CASE

ECZEMA AND DERMATITIS

SYNDROME OF AVELLIS

REPORT OF THREE CASES

ACUTE ENTERITIS IN INFANTS AND IN YOUNG CHILDREN

BACTERIOLOGIC, MORPHOLOGIC AND CULTURAL STUDIES OF STREPTOCOCCUS MICRO-APOIKIA, CLINICAL STUDIES ON FORTY-SIX PATIENTS

BRONCHIAL ASTHMA AND ALLIED ALLERGIC DISORDERS

PRELIMINARY REPORT OF A STUDY UNDER CONTROLLED CONDITIONS OF ENVIRONMENT TEMPERATURE AND HUMIDITY

ORIGINAL TITLES

THREE HUNDRED AND THIRTY LOW, CERVICAL CESAREAN SECTIONS (LAPAROTRACHELOTOMIES) WITH TWO DEATHS

A CASE OF DERMATITIS GANGRENOSA INFANTUM

STUDY OF A CASE OF ACNITIS, WITH PARTICULAR REFERENCE TO THE BACTERIOLOGIC FINDINGS

FURTHER STUDIES IN ECZEMA AND DERMATITIS

SYNDROME OF AVELLIS, WITH A REPORT OF THREE CASES

BACTERIOLOGIC STUDIES IN ACUTE ENTERITIS IN INFANTS AND YOUNG CHILDREN, INCLUDING BACTERIOLOGIC METHODS MORPHOLOGY AND CULTURAL CHARACTERISTICS OF STREPTOCOCCUS MICRO APOIKIA AND CLINICAL STUDIES ON FORTY-SIX PATIENTS WITH ACUTE ENTERITIS

THE STUDY OF BRONCHIAL ASTHMA AND ALLIED ALLERGIC DISORDERS UNDER CONTROLLED CONDITIONS OF ENVIRONMENT TEMPERATURE AND HUMIDITY A PRELIMINARY REPORT

Dr Ruth Tunnicliff is mentioned frequently in foreign indexes as Dr Tunnicliff Ruth, and Dr Marion Van Slyke sometimes is referred to as Dr Van S. Marion. A young author should decide early in his career the manner in which he wishes his name to appear and should not change thereafter Sir William Osler always signed his communications "W Osler" Obviously if the name is a common one, such as Smith, Brown or Johnson, and only the first initial is signed by the author identification for indexing purposes is not easy It is advisable for authors whose names are not widely known to sign the full name or in any event, to adopt a consistent form and to follow it regularly

HEADINGS AND SUBHEADINGS

Headings and subheadings help the reader to find the points which interest him most. Center heads break up pages of solid type which repel the eye, and they aid the author to present his subject logically It is to be regretted that center heads are not used more commonly in medical and other scientific journals.

If the author has prepared his article systematically he will have collected his material according to various phases of the subject. Thus he may have an introduction, bibliographic references arranged chronologically or by classes, case reports, protocols of experiments, a summary and conclusions. Obviously these represent center headings under which may come still more detailed subheads. Subheadings may take additional work, but it is worth while: they make the article more attractive and thus more likely to be read. The author is more competent than the copy editor to furnish subheadings.

As the author plans his structure, he should bear in mind that all material under one heading should belong to it, and that if the subject is changed another heading must be inserted.

TYPE

Use of Italics. Excessive use of italic type detracts from the simplicity of style desirable in scientific works. In the publications of the American Medical Association italics are used sparingly They are permitted for emphasis of words or phrases only when the effect can be secured in no other way

THE AUTHOR S NAME

Much unnecessary confusion arises in the indexing of medical literature because authors sign their names in different manners in different countries In France and in Germany many writers sign only their surnames, others use only initials for the first name. Many authors in foreign publications sign the name at the close of the article.

The Italians sometimes write the given name last. The Spanish frequently follow the father's surname with the mother's maiden name, and it is difficult to tell which is the baptismal name and which the surname. For example Dr Remigio Salazar should be indexed as R. Salazar under the S's, while Dr Alvárez Sierra is Dr Alvárez, and Sierra is to be disregarded Then, again, for personal reasons some Spanish writers prefer to be known by the mother's family name, so Dr Angel Pérez Martín is always called Dr Martín and Dr Gómez y Giocoechea, Dr Giocoechea Prof Santiago Ramón y Cajal signed himself Cajal rather than Ramón References to the works of these men, however, should be indexed under the father's surname, the name being listed for instance, as Pérez Martín A.

Chinese names usually are written with the surname first and the name which corresponds to the Christian name second in two words with a hyphen between them for instance, Wu Lien tech Some write their names with the surname last but still hyphenate the given name, as Lien tech Wu. Still others use only the initials, in which case the surname is always the last, as L. T Wu. When the second name is not hyphenated, it is difficult to know which is the surname and which the given name. When there is only one word to the second name, the surname should always be written first, as Wu Hsien, when Wu is the family name. In a few instances there are two syllables in the surname as well as in the given name then the first two should be the surname, as Ou Yang Yu shen

Obviously in consulting American and English literature, the Spanish-speaking physician is at a loss and is likely to refer to Dr Oliver Wendell Holmes as Dr Wendell The American practice in recording literature that of giving the last name first, followed by a comma and the given name, sometimes produces errors thus,

5

Words and Phrases

SOLECISMS

Attention is called to the following paragraphs regarding solecisms quoted from an editorial by William H. Woglom.

Due to. This expression is a problem. Fowler says that this expression is used by the illiterate as though it had passed, like "owing to," into a mere compound preposition, whereas "due," like ordinary participles and adjectives, must be attached to a noun and not to a notion extracted from a sentence. Webster's "New International Dictionary" defines "due" as, "owing (*to* something) . . . as, his death was *due* to pneumonia, often erroneously used in the phrase *due to*, meaning 'because of,' modifying a verb in the manner of a compound preposition, as, he failed *due* to lack of study."

Hypothecate. This does not mean "to make a hypothesis," as some seem to think, but "to deposit as security."

Data. The word "data" is a plural noun. Never, never, NEVER write "the data is."

Blastogenic. This is coming into use to mean "giving rise to tumors," but it should not be so employed because it was established long ago to describe Weismann's theory of blastogenesis. Accordingly Dr. Esmond R. Long, Medical Editor of Webster's "New International Dictionary," was asked to suggest a substitute. Consultation with his fellow editors led to the decision that "blastogenic" is an erroneous compound of blastoma, and the word "blastomatogenic" was proposed.

Butter Yellow. This expression should not be used because it has been applied to four different compounds, hence is ambiguous. Furthermore, considerable anxiety already has been aroused among the lay public on account of the perfectly natural misapprehension that butter yellow is used to color butter. For these reasons the chemical rather than the popular name should be selected.

Procarcinogen. The term "procarcinogen" should not be used. Since "pro" in biochemistry denotes a precursor, as in "prothrombin," the preferred word is "cocarcinogen," and "procarcinogen" will be reserved until such time as the precursors of naturally occurring carcinogens may be discovered.

Medical Jargon. Many words with unusual meanings that are not recognized even by medical dictionaries have found their way into medical vocabularies. Such writings may be characterized as medical jargon or medical slang. When these words appear in medical manuscripts or in medical conversation, they are unintelligible to other

Greek Letters and Symbols When Greek letters are used they should be carefully inserted in ink, using a pen with a sharp point. It is desirable to identify them for the typesetter, either by writing the name of each letter in full in the margin or by using an accepted code number These are sometimes included in the handbooks supplied authors by certain publishers

Mathematical and other symbols likewise should be identified in the margin. Minus signs should be clearly indicated, as they may be confused with hyphens use one hyphen with space at both sides, but omit the space after the hyphen when the sign represents a negative quantity and is not an indication of subtraction Write the plus sign in ink unless the symbol is available as such on the typewriter

5

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SOLECISMS

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> *Hypothecate.* This does not mean "to make a hypothesis," as some seem to think, but "to deposit as security."
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Medical Jargon. Many words with unusual meanings that are not recognized even by medical dictionaries have found their way into medical vocabularies. Such writings may be characterized as medical jargon or medical slang. When these words appear in medical manuscripts or in medical conversation, they are unintelligible to other

scientists, particularly to those of foreign countries since they are not translatable They are the mark of the careless and uncultured person

A number of these terms are given here, with the correct words following

Jargon	*Correct Term*
acute abdomen	acute condition within the abdomen
alcoholic (as noun)	alcoholic addict, person with alcoholism
Ammon's horn	cornu ammonis
cardiac, cardiac patient	patient with cardiac disease
cardiac diet	diet for patients with cardiac disease
chronic appendix	chronic appendicitis
chronic ear	chronic otitis
diabetic (as noun)	person with diabetes
epileptic (as noun)	person with epilepsy
flu	influenza
jugular ligation	ligation of the jugular vein
lues, luetic	syphilis, syphilitic
milligrams per cent	milligrams per hundred grams [or] other unit
multip	multipara
neisserian disease	gonorrhea
organ or structure is negative	organ or structure is normal
oviducts	fallopian tubes
pathology (in concrete sense)	pathologic change, disease
positive serology	positive serologic tests for syphilis
primip	primipara
prostatic	patient with hypertrophy inflammation or some other disturbance of the prostate gland
right upper lobe	upper lobe of the right lung
serology	changes in the blood or serologic reactions of the blood or the spinal fluid
specific	syphilitic, when that is meant
specific stomach	syphilis of the stomach
spinal fluid dynamics	dynamic pressure of spinal fluid
surgical (or operative) interference	surgical (or operative) intervention
subtotal gastrectomy	partial gastrectomy
suspicious of	suggestive of
syphilitic (as noun)	person with syphilis
taboparesis	the tabetic form of dementia paralytica
upper abdomen	upper part of the abdomen
upper respiratory infection	infection of the respiratory tract
urine contained 4 plus albumin	urine gave a 4 plus reaction for albumin [or] urine contained albumin (4 plus)

Certain forms of phraseology become established in medical discussions so that they are easily recognized by the physician, but are ludicrous when written. Physicians frequently say that a patient was placed "on cannabis, on hydrotherapy or "on a diet." Probably most grammarians would sanction the last of these three phrases but would hesitate to approve the statement that the patient was "placed on cannabis." In such instances it is better for the writer to state that cannabis was prescribed in a certain dose to be administered at certain periods in a certain manner A physician may say "I have had no experience with starvation in epilepsy " Obviously he means that he has not tried the treatment of epilepsy by starvation of the patient. He will say "I have had little experience with pneumothorax in *tuberculosis*," meaning *that he has not attempted the use of this* method in any case of tuberculosis which has come to his attention.

Trite Usage Many a competent journalist has urged reporters to use words that say exactly what is meant and to avoid the diction that has become trite by overusage A good reporter never says Smith sustained an injury" he says Smith was injured " He never writes that people were "joined in the holy bonds of matrimony" he says "they were married." It is unnecessary to say of a well known man that he is "well known" and, in any event, "widely known" is better than "well known." A dog is just a dog and not a canine," exactly as a cow is a cow and not a "bovine." People begin various processes they seldom "inaugurate" or initiate these affairs. A patient lives in Portland he is not "located" in Portland. The body of a dead man is his "body" and not his "remains." Far too many sentences begin with the words It is" and "There is."

Case. A case is an instance of disease, the totality of the symptoms and of the pathologic and other conditions a patient is the human being afflicted One continually finds in medical manuscripts such sentences as "The case had a fever " "Thirty cases were admitted to the hospital" and "The case was operated on." In the publications of the American Medical Association such usages are banned.

A less obvious confusion exists in the employment of "case" to designate the condition. While from the definitions of the word given in dictionaries it might be used in the narrow sense of an attack of a

disease, in which event it might be considered as the condition itself, such usage is likely to lead to constant shifting of the point of view, even within sentences or paragraphs. One might write, for instance

In the acute case the patient was admitted to the hospital' Obviously, a case which is acute includes only the actual disease and its symptoms, while a case in which admission to the hospital is made and records are kept must include far more—all the attendant circumstances Thus the word would be used in two senses in the same sentence. To avoid such inconsistency, proper medical writing restricts the use of "case' to its broader meaning, as indicated in the preceding paragraph—an instance of disease, the totality of what is known about the patient, his condition and all the circumstances. Moreover, the concrete subjects with which one is dealing are the patient and his condition, and writing will be simplified and vivified if one refers to them specifically rather than to the abstract "case."

Use of Abstract Words in a Concrete Sense A malignancy was removed,' 'The cytology was normal and similar statements are found frequently in manuscripts. For many years it has been a policy of the American Medical Association Press to avoid the use of abstract words in a concrete sense. The suffix "ology, for instance, according to Webster means 'a science or branch of knowledge' and to use a word with that ending to describe a tumor or a specific change in the tissue is illogical and inconsistent with the principles of good choice of words. "There was no pathology" is an outrageous sentence. One would not dream of saying "There was no ophthalmology' for instance. The use of etiology" as a synonym for cause is a similar common abuse of the language. Again, 'etiology is a broad term meaning the science or study of the causes of disease.

The following incorrect and correct sentences illustrate the principles that should be followed in the preparation and in the editing of manuscripts

Incorrect	*Correct*
The growth proved not to be a malignancy	The tumor was not malignant. The malignancy of the growth was not established

Incorrect	*Correct*
There was no pathology	A pathologic condition was not found.
	The pathology of syphilis is worthy of much study
The morphology of the tissue was that of sarcoma.	The structure of the growth showed it to be a sarcoma.
The histology of the lesion was studied.	The lesion was examined histologically (or microscopically)
The cytology was normal.	The cells (or cell count or whatever specific features were noted) were normal.
The patient presented a severe symptomatology	The patient had severe symptoms.
	A knowledge of symptomatology aids the physician in diagnosis.
	The symptomatology of tuberculosis is varied.[2]
The etiology of the anemia shown by this patient was not known.	In this case the cause of the anemia was not determined.
	The etiology[3] of some diseases is still vague
Microscopy showed the changes to be well advanced.	Microscopic examination revealed the nature of the tumor
Bronchoscopy was performed immediately	A bronchoscopic examination was performed immediately
	Treatment with the bronchoscope relieved the patient.
	The development of bronchoscopy has aided the physician greatly
Ventriculography showed normal filling.	A ventriculogram was made on several occasions.
	Encephalography should be understood by every neurologist.
Surgery seemed the only possible treatment for that patient.	Surgical intervention was considered but was postponed.
	(Title) Surgery of the Gallbladder[4]

Dosage and Dose. "Dosage" means the administration of medicine in regular doses or the determination and regulation of the proper

"Pathology" here means the part of the science of pathology that deals with syphilis.

"Symptomatology" here refers to the entire complex of symptoms known to be associated with tuberculosis.

"Etiology" here means the theories of the causation of the disease. "Causation," however would be better.

"Surgery" may be used in an instance such as this if the author wants to emphasize that he is dealing with the part of the entire field of surgery that concerns the gallbladder. Usually however "Surgical Intervention on the Gallbladder" is adequate.

doses. The amount of a medicament to be administered at one time is correctly termed the dose.' Such expressions as 'administered in small dosage' or "dosage of 3 drops are redundant and should be avoided, and the shorter and more concrete word "dose should be employed

Inject. The transitive verb "inject means (1) to introduce a substance into or (2) to distend or fill with fluid by injection It is therefore incorrect to speak of injecting a patient with arsphenamine" or of "injecting a rabbit with virus.' One "gives the patient an injection and "injects the virus into the rabbit' or 'inoculates the rabbit with the virus. It is permissible, however, to say that one 'injects the bronchi" or 'injects the blood vessels of a cadaver' when one actually fills the structures with a contrast medium

Temperature and Fever, and Analogous Expressions. To say that a patient had "no temperature is incorrect. 'No fever' or no elevation of temperature may be used although it is perhaps better to say that the temperature is normal' or "higher than normal or 'subnormal" Better still, if the temperature is abnormal, it should be given in terms of the Fahrenheit or centigrade scale. It is, moreover incorrect to say that a patient had a fever of 102° F tempera ture rather than 'fever' should be used

An analogous faulty usage occurs frequently with other words. Leukocytosis, for instance, means the *presence* of an abnormally large number of white cells in the blood It is undesirable, therefore, to speak of "leukocytosis of 15 000 instead of a leukocyte count of 15 000 If an author wishes to emphasize the abnormal condition by the use of the word leukocytosis, he may say that leukocytosis was present (15 000 cells) or that there was leukocytosis, the white cell count being 15 000

Similarly manuscripts frequently contain such expressions as 'The glycemia increased from 90 to 125 mg per hundred cubic centimeters and There was hyperglycemia of 150 mg These ideas would be expressed better as 'The sugar content of the blood increased from 90 to 125 mg The sugar content was high 150 mg per hundred cubic centimeters or 'There was hyperglycemia the sugar content being 150 mg '

Cystoscope Obstetricate Explore Refract The following sentence appeared in a manuscript submitted for publication

> It was decided that the patient should be explored with the expectation of finding an acute appendix.

Such a decision once made, the surgeon did not hesitate he explored his patient. Another surgeon was not so courageous

> We have contemplated having some of our inoperable cases collapsed by thoracoplasty but have delayed.

And another physician, finding the English language rather inadequate for his purpose, perpetrated this monstrosity

> In a case in which I obstetricated at birth

Such use of transitive verbs with illogical objects has no justification in the laws of grammar or in the usage of persons of even ordinary education. Even less justification exists for using ordinary common nouns as verbs which do not exist. Astronomers never telescope the sky bacteriologists never microscope their slides but urologists do not hesitate to cystoscope their patients. Far worse however is the conversion of proper names of scientists into verbs describing procedures that they have evolved or discovered. The bacteriologist who would not microscope his slides will "Schick one patient and "Wassermann" another

Use of Adjectives as Nouns. Some words, such as "juveniles," "adolescents, adults" and "convalescents," which originally were pure adjectives and are still adjectival in form, have come to be accepted as nouns. In most instances, however it is well to avoid the use of an adjective as a substantive, from the standpoint both of linguistic purity and of accuracy in medical terminology "Sphenoid" and "ethmoid" are now listed in medical dictionaries as nouns designating the respective bones their use in a similar way to indicate the sinuses, however is not sanctioned and is misleading to the reader who frequently is unable to determine which structure is meant. Neurologists frequently speak of "the sympathetic" or "the sympathetics." How much more informative it would be if in each instance some specific phrase, such as "the sympathetic nervous system," "the sympathetic

nerve supply of the area," "sympathetic nerve fibers" or "the cervical portion of the sympathetic trunk," were supplied! Use of the adjectives designating arteries, veins, nerves and muscles as substantives may cause a reader to puzzle, for instance, over whether an artery, a vein or a nerve is meant when an author speaks of "the iliac" or "the peroneal"

"The former" or "the latter" refers to one of two specific things just mentioned and therefore may be considered as having a specific "antecedent," making insertion of a noun in each instance unnecessary In the case of "the foregoing" and "the following," however, the exact thing referred to may not be as clear as it should be in scientific writing, so usually it is better to supply the noun which the author has *in mind*, as "*the foregoing list*" or "*the following formula*."

Some terms are so frequently used in various phases of medical practice that they become recognized as in good usage. For instance, the industrial physician has employed the following terms so frequently that their use is permissible

accident proneness	labor union
case finding	occupational hazard examination
employee morale	plant supervision
employee union	union grievance
health audit	work stoppage
health examination	

In other phases of medical practice, other combinations have also been so frequently used as to be recognized as good form. Here are some examples

blood cultures	lower back pain
blood plasma	skin flap
brain damage	skin reaction
brain injury	skull fracture
cataract extraction	urinary tract infection
lid margin	

Adjectives Modifying a Word Other Than the One Qualified. Such expressions as "the right chest" and "the upper abdomen" are commonly used Since there is only one of each of these structures and the adjective really modifies an understood "side" or "part," the

phrases should be expanded to "right side of the chest" or "upper portion of the abdomen" or some equally accurate designation.

A similar misuse of adjectives occurs in such phrases as "upper respiratory infection," which means and should be expressed as "infection of the upper part of the respiratory tract." Other undesirable phrases of this type are

right heart	for	right side of the heart (specify right ventricle or right auricle)
cardiac diet	for	diet for patients with cardiac disease
jugular ligation	for	ligation of the jugular vein
facial paralysis	for	paralysis of the facial nerve, when that is meant
left lower lobe	for	lower lobe of the left lung

Further illustrations are included in the list of examples of medical jargon on page 43.

Group and Type. A favorite of many physicians is the word "group." An author may divide his patients into "groups" on the basis of age, again on the basis of the type of disease presented and finally on the basis of the results obtained. In many instances confusion may be avoided by using other terms, such as "series" and "subgroup," to distinguish the divisions concerned.

The use of "group" in the sense of "type," however, as in the phrase "this group of sarcoma," should be avoided not only because of vagueness but also because of inaccuracy. Funk and Wagnalls "New College Standard Dictionary" gives 8 definitions of "group" and Webster gives 12, but none of them justifies this use of the word. Frequently an author says after a sentence has been questioned that he means a group of cases of a particular type of tumor, but he did not bring this out in the manuscript. The following examples of correct usage should be considered carefully:

> In the first group of cases sarcoma of the spindle cell type occurred.
>
> This type of growth belongs to the lymphoblastoma group (that is, a group of several related structures all of which are lymphoblastomas).
>
> The type of lymphoblastoma under consideration is interesting.

Carelessness in writing and in organization of material is evident when, for instance, an author defines three groups of cases, numbered

sentence "The disease developed in this patient when he was 6 years old."

Biopsy The term 'biopsy' is variously defined by dictionaries. Many physicians employ the word to cover both the surgical removal of a specimen from the living subject and its examination under the microscope. I believe it is best to adopt this broader sense which includes the whole procedure. It is redundant, however, to speak of "biopsy examination."

VAGUE AND INACCURATE TERMS

Ambiguous Pronouns. Confusion is caused by careless use of pronouns. It often is impossible to tell when an author is referring to himself and when to some other person or persons. He may refer to himself in one place as "the writer," in another as "I" and in still another as "we." He may then use the pronoun "we" with reference to the medical profession or to people in general. The use of the first person singular ("I" or "me") is usually the clearest and most satisfactory usage.

In a supplement to the *Lancet*[1] it was stated

> The first person singular—the naked *I*—is no longer thought immodest. Elaborate garments such as *we* and *the author* do not disguise a writer's identity unless they also disguise his meaning and medicine has no need of such aids to ambiguity

When an author is reporting work done in conjunction with others, it is proper for him to use the pronoun "we," provided he states who are represented by the "we," so that the reader will not be confused. When reference is made to one of two or three joint authors, the correct form is "one of us," with either the initials or the name in parentheses if the authors wish it.

The use of "the writer" or "the author" when the author of the paper means himself often makes it difficult to tell whether the author of the paper or another author just referred to is meant, and such usage is not permitted in the periodicals published by the American Medical Association. In impartial reviews of the literature, in which

[1] On writing for the Lancet, Lancet, Jan. 2, 1937 supp., p. 1.

the author is abstracting earlier papers by himself alone or in collaboration with others, as impersonally as reports by other physicians, it is permissible for him to say "Jones and Brown reported " instead of "Brown and I reported " if awkwardness is avoided by use of this form.

As an example of the difficulty occasioned by improper use of the word "we" the following incident is cited

An author used the plural pronoun all through his paper One sentence originally read

> Feeling as we do, we have ceased to employ it unless for some exceptional reason.

This was changed to:

> The hospital staff has ceased to use radium unless for some exceptional reason.

The author in going over his proof, made the sentence read

> Personally we have ceased to use radium unless for some exceptional reason.

The manuscript editor anticipating trouble, spoke about this when the proof was returned and suggested that the statement might read

> Radium is no longer used in the clinics at the New York Post-Graduate Medical School and Hospital.

This suggestion was not put into type but was submitted to the author for his approval with a letter relative to the use of the plural pronoun, saying:

> As you will notice, we have made a *suggestion* on the last galley to obviate the use of the plural pronoun.

He apparently took offense at this suggestion for modifying the sentence, for in his letter returning the proof he said

> I refer particularly to the end of the article where you have made a decided change in the wording. You have also caused me to state what is not correct (the fourth paragraph from the end) when you substitute "is no longer used in the clinics at the Post-Graduate Hospital."

The author finally changed the sentence to read

> Personally I have ceased to use radium

The use of the pronoun 'you when physicians in general or people in general are meant is also *confusing*

In reports of meetings of societies "we and "you may be used to refer to the members.

Overworked Phrases. Certain locutions are likely to become established as a part of the vocabulary of the physician Such phrases as the examination revealed," "the microscope showed," "significant observation 'points out, 'unexplored fields, "throws light, "symptom complex," "so-called," "suffered from the disease (meaning had), '*complains of the disease*" *and interesting and instructive* are so frequently used by authors that they are likely to pass over them even after five or six readings of their manuscripts. A special revision should be planned to eliminate overworked phrases.

Superlatives—Very, Quite, Marked, Great. Physicians and scientists frequently seem to find difficulty in expressing comparative size or comparative degrees of severity of illness hence such words as very ' quite, "marked and "great' are used to excess.

The use of "very' *was discussed by Franklin P Adams in the* New York *Tribune* He said

> Years ago this Pisa of Puristics, buttressed by Mr Gelett Burgess, offered a prize for an instance of the adverbial use of "very" that made the qualified word stronger As we recall it, "Very Good Eddie" and "the Very Reverend Somebody" were the only offerings. The use of "very' in speaking or writing is a confession of verbal poverty and mental indolence.

The true meaning of quite is completely The use of the word in the sense of considerably' is designated as colloquial (United *States*) in the Pocket Oxford Dictionary' and in the Standard Dictionary' and as loose or erroneous by Webster Moreover "The skin *was quite red tells the reader no more than does 'The skin* was red '

When 'quite' (except in its strictly correct sense) or 'very' appears in an article accepted for publication in one of the periodicals of the American Medical Association, the word usually is deleted by the manuscript editors.

In an editorial in the *Archives of Dermatology and Syphilology* [4]

[4] The careless writing of medical authors, editorial, Arch. Dermat. & Syph. 3:421 (April) 1921

Dr William Allen Pusey then and for many years its editor presented the following discussion of the use of the word "marked"

> The too frequent use of the participial adjectives "marked" or "pronounced," when the writer means great, large distinct, appreciable moderate considerable extreme, intense or some other quality that he could easily with a little thought, express accurately by means of a descriptive word, is perhaps the most frequent fault. "Marked" used in this indefinite sense was found four times in two short consecutive paragraphs in a manuscript written by an academic graduate of one of our famous colleges. The adverb "quite" is used in the same way sometimes it is used as a diminutive adverb, as "quite frequently" for "occasionally" or to express all degrees of qualification from slightly to completely "His mentality was quite low" for "His mentality was extremely low" The great objection to the loose use of such words as "marked" and "quite" is that the words when so used do not indicate accurately what qualifications the writer means.

On this subject Charles A. Mercier[1] wrote:

> It is to be regretted that we have never adopted the admirable proposal of Dean Swift, to keep all adjectives under lock and key and issue them to writers only on payment of a heavy fee. Certain words are so shockingly overworked by medical writers as to call loudly for a Society for the Prevention of Cruelty to Adjectives. It would be invidious to quote from any individual writer to illustrate a vice so generally prevalent, and therefore I will disguise the reference by altering the disease but mutatis mutandis, I recently read in your columns an account that ran much as follows: A marked erythema was followed by a marked ulceration, with a markedly sinuous edge which spread with marked rapidity and developed a marked discharge, having a markedly purulent character increased to a markedly large size and was accompanied by a marked enlargement of the lymphatic glands. Treatment brought about a marked improvement with marked rapidity and the ulcer healed, leaving a markedly thickened scar which became the seat of marked keloid.

Above and Below In preparing copy for publication it is well to avoid the use of the words "above" and "below" for one cannot know just where a passage will come on the printed page. The paragraph referred to as "above" may fall at the bottom of one page, and the one in which it is mentioned, at the top of another The difficulty may be avoided by use of such a term as "mentioned," "previously mentioned" or "aforementioned," or by referring to the heading or subheading of the section in which the statement cited appears.

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[1] Mercier Charles A. How medical writings may be given a marked development. Brit. M. J. 1:768 (May 20) 1916.

Et Cetera. 'Et cetera' or "etc." should not be used in scientific articles, since the term conveys little if any idea of what was in the mind of the person who used it, and the manuscript editor usually is not able to substitute anything more specific. When "etc." follows "such as" or "for instance," it is superfluous.

Bilious. There was a time when anyone who was a little peaked and whose gastrointestinal tract was somewhat upset was characterized as "bilious." The term is a complete misnomer, since it does not refer to any actual disease. Scientific physicians have discarded it entirely

Eczema. To the average layman, any disease of the skin is 'eczema." Unfortunately, dermatologists themselves have fought over the term for many years. The word "eczema" refers to a certain type of reaction in the skin, as do the terms "urticaria," 'erythema multiforme" and "erythema nodosum." The latter are definite types of reaction, due to numerous causes or often to unknown causes. An abundance of dermatologic papers have been concerned with the nature of eczema or eczematous types of eruption.

Neurasthenia, Psychasthenia and Hysteria. These terms are commonly used by the layman, together with 'nervous breakdown," to describe any temperamental or mental disturbance. To the physician, they should indicate definite conditions.

Strain and Sprain Some physicians refer to any disturbance in a muscle or a ligament as a strain, when in reality it is sometimes a sprain. These terms are ambiguous, since the exact condition constitutes a rupture of the tissues or perhaps a dislocation. The terms strain and 'sprain seem to be without exact significance.

Infection vs. Inflammation When the body is invaded by bacteria, it is infected. When any portion of the body suffers irritation from any cause, bacterial or otherwise, it responds by becoming red swollen and hot this reaction is inflammation. The two terms are commonly used interchangeably without any conception as to their actual meaning

Rheumatism. The use of this word as a designation for any pain is not justified It is misused particularly with reference to the disease known as arthritis, which is inflammation of a joint.

Asthma. The term "asthma" commonly is used to designate any disease in which there is shortness of breath. Actually shortness of breath may result from one of many causes, including a disease known as bronchial asthma. The correct term for shortness of breath is dyspnea."

PREFERRED USAGES

Among other usages which frequently appear in medical writings and which, while not incorrect, in some instances are susceptible of improvement are

Word or Phrase	*Preferred Usage*
adrenalin	epinephrine
affection (except in the special neurologic sense)	disease
agranulocytosis	granulocytopenia
all of	all
cane sugar	sucrose
carbon dioxide snow	solid carbon dioxide
casualty	wounded person
colored	Negro
cure (meaning treatment)	treatment (these words are not interchangeable)
deep roentgen therapy	high voltage roentgen therapy
doctor	physician
enteric fever	typhoid
functionating	functioning
general paresis, general paralysis, paretic dementia	dementia paralytica
Graves's disease, Basedow's disease	exophthalmic goiter
gut, guts	intestine intestines
Hebrew Israelite	Jew Jewish
hemeralopia	day blindness
humans	human beings, man
hyphema	hyphemia (indicating hemorrhage of the eye)
hypodermatic	hypodermic
in extremis	moribund, dying
individual	person
insanity	mental disease
leukocytic count	leukocyte count

"Gut" is used in embryology

Word or Phrase	Preferred Usage
lymph gland	lymph node
male, female	boy or man, girl or woman
medical men, men	physicians (or dermatologists, neurologists or some other specialists)
microphotograph	photomicrograph
milk sugar	lactose
mongolian, mongoloid (as noun)	person with mongolism
nyctalopia	night blindness
pediatrist	pediatrician
physiotherapist	physical therapist or physiatrist
physiotherapy	physical therapy
polynuclear (when referring to leukocytes)	polymorphonuclear
proven (archaic)	proved
remarks (in heading)	comment, observations
round-celled tumor	round cell tumor
sacrificed	killed
Scharlach R	scarlet red
skiagram	roentgenogram
spotted fever	specific disease meant, such as typhus, cerebrospinal meningitis or Rocky Mountain spotted fever
suprarenal	adrenal
therapist	therapeutist
treponeme	spirochete
tumor mass	tumor
ultraviolet light	ultraviolet rays
x-ray picture	roentgenogram

Foreign Phrases. From the time when the mark of the physician was his ability to discourse fluently in Latin, certain Latin phrases have filtered into medical discussions with a frequency that resembles the manner in which *Bacillus subtilis* may contaminate pure cultures of virulent germs. Terms frequently abused are *pari passu*, *a priori*, *per se*, *in extenso*, *per os*, *in extremis* and *exitus lethalis*. How much better to say simply, "The patient died," than to indicate his passing to immortality by a Latin route.

Other foreign terms frequently used are *per contra*, *ad lib.* and *sub judice*. Such terms may be used but should be avoided when possible.

In the publications of the American Medical Association Press a translation of foreign quotations usually is included. When an author

wishes to use a foreign quotation, it is well for him to insert a translation in parentheses.

Another frequent abuse of foreign terminology is the mixture of Latin and English terms in the writing of prescriptions, in anatomic descriptions and in the presentation of anatomic diagnoses associated with the records of postmortem examinations. The American Medical Association Press does not insist that authors use English names for diseases or for parts of the body. When an English term is available, however, its use is urged. When a Latin anatomic name is used, the BNA term should be employed if one is available.

Gender of Pronouns. In a novel or a literary essay, it may be natural to personify animals and to speak of them as "he" and "she." In scientific writing, however, in which an author is describing animals used in experiments in the laboratory, personification is not desirable and the pronouns "it" and "which" should be used. The possessive form of the relative pronoun, "whose," may be used instead of "of which" or "in which" in references either to animals or to inanimate objects when awkwardness might result from insertion of a prepositional phrase.

Eponyms. In an article on gastrectomy, Sir Heneage Ogilvie[1] demonstrated the folly of depending on eponyms to designate a type of surgical procedure.

> There is no standard gastrectomy; but a gastrectomy for ulcer must satisfy three requirements: (1) it must reduce the production of acid to a safe level and restrict its flow to the time when food is in the stomach, (2) it must ensure a certain period of gastric digestion and not throw the food straight from the oesophagus into the small intestine; and (3) it must direct the outflow from the stomach in an onward direction only. These requirements are satisfied by the Schoemaker type of Billroth I gastrectomy with end-to-end gastroduodenal anastomosis, and (if we must have names, let credit be properly attributed) by the high posterior Finsterer Lake-Lahey modification of the Mikulicz-Kronlein-Hofmeister-Reichel-Polya improvement of the Billroth II gastrectomy with a large valve and a small stoma.

On one page of an article on tabes appeared the following terms to indicate tests or reactions: Cheyne-Stokes, Babinski, Strümpell,

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1. Ogilvie, Sir Heneage: Gastrectomy; A human experiment, Lancet 253:377 (Sept. 13) 1947

Marie Foix and Klippel Weil While it is historically interesting to have a sign, test, reaction or disease known by the name of its discoverer, it is in the interest of scientific medicine to use a descriptive term. Certainly reflex rigidity of the pupil is better than "the Argyll Robertson pupil "great toe reflex' is preferable to "the Babinski sign , exophthalmic goiter' is more descriptive than "Basedow's disease. When a discovery is credited to several writers, the matter becomes complicated by the fact that national pride may assign a different name to the disease in several different countries. What is known in England as 'Graves's disease is called "Basedow's disease on the Continent except in Italy, where it is known as Flajani s disease.

In some instances, nevertheless, a condition of disease may be recognized as an entity before its nature is sufficiently well defined to permit choice of an accurately descriptive name. Hodgkin s disease, for instance, is at present preferable to lymphogranuloma,' 'lymphogranulomatosis, infectious granuloma and other synonyms that have been proposed

The following table of eponymic diseases is quoted from the Standard Nomenclature of Diseases and Operations' [*]

Abrami s disease. *See* Hemolytic icterus, acquired, 252 (9)
Acosta s disease. *See* Hypobaropathy 113 (4)
Adams-Stokes syndrome *manifestation* 246 *Diagnose disease* e g Arteriosclerotic heart disease, 228 (5 0)
Addison s anemia. *See* Anemia, pernicious, 249 (7)
Addison s disease *See* Tuberculosis of adrenal gland with cortical hypofunction 454 (1) Adrenal cortical hypofunction adrenal disease undetermined, 455 (7)
Adie syndrome. *See* Encephalomyelopathy of unknown origin *464 (y) manifestation*, 521
Albers-Schönberg disease *See* Osteopetrosis (marble bones) 144 (0)
Albright's disease. *See* Osteitis fibrosa cystica 150 (7)
Alzheimer's disease. *See* Presenile sclerosis, 101 (7) 480 (7)
Aran Duchenne muscular atrophy *See* Duchenne Aran muscular atrophy
Argyll Robertson pupil. *See* Paralysis of intrinsic muscles of eye 517 *and* Reflex rigidity of pupil 519
Arnold-Chiari syndrome. *See* Caudal displacement of brain stem, cerebellum and spinal cord, 461 (0)

[*] The "Standard Nomenclature of Diseases and Operations" is now published by The Blakiston Division, McGraw Hill Book Company Inc. for the American Medical Association. The latest edition embodies revisions as of 1954

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Waterhouse-Friderichsen syndrome. *See* Meningitis, cerebrospinal, epidemic (meningococcic) 468 (1)
Weber's paralysis. *See* Paralysis, alternating, oculomotor hemiplegic, 518
Weber-Christian disease. *See* Nodular nonsuppurative panniculitis, 1[illegible]6 (1)
Weil's disease. *See* Jaundice, spirochetal, 109 (1)
Werdnig-Hoffmann syndrome. *See* Hoffmann-Werdnig syndrome
Werlhof's disease. *See* Thrombopenic purpura, idiopathic hemorrhagic purpura, 252 (7)
Wernicke's disease. *See* Polioencephalitis, superior hemorrhagic, 4[illegible] (1)
Westphal-Strümpell pseudosclerosis. *See* Strümpell-Westphal pseudosclerosis
Whitmore's disease. *See* Melioidosis, 110 (1)
Wilms' tumor. *See* Embryonal carcinosarcoma of kidney 345 (6)
Wilson's hepatolenticular degeneration. *See* Hepatolenticular degeneration, 453 (9)

Antepartum and Prenatal. In the periodicals published by the American Medical Association a distinction is made between these two words. "Antepartum" is used to refer to the mother before parturition or to events or circumstances affecting her during pregnancy; "prenatal" to refer to the fetus before birth.

Epidemic Encephalitis. In order to avoid the confusion occasioned by using "epidemic encephalitis" to refer to all types of acute encephalitis, it is well to employ "lethargic encephalitis" or "encephalitis lethargica" to designate the disease originally described by von Economo, to distinguish it from the types observed in epidemics in St. Louis, Toledo (Ohio) and Japan.

Nomenclature of Fungous Diseases. Mycology is one of the newer branches of medicine and the confusion and inconsistency evident in some of the terms relating to fungous diseases are only now being corrected. An author should be guided by the nomenclature adopted by scientific bodies concerned with medical mycology and should observe the usages of present authorities in that field. The following definitions represent the trend of current usage:

"Dermatomycosis" is a generic term including all infections due to fungi, superficial and deep.

"Dermatophytosis" is synonymous with "dermatomycosis," but usage tends to associate "dermatophytosis" with ringworm of the hands and feet or with superficial fungous infections of the skin.

"Epidermophytosis," "trichophytosis" and similar words indicate infection due to *Epidermophyton*, *Trichophyton* or some other specific fungus.

"Dermatophytid" refers to a lesion of an allergic reaction to a dermatophytosis.

Lymphogranuloma Venereum The American Medical Association, as well as the National Conference on Nomenclature of Disease, prefers the term "lymphogranuloma venereum" to "inguinal lymphogranuloma," "lymphogranuloma inguinale" or "lymphopathia venerea (um)"

This disease and its name should not be confused with inguinal granuloma (granuloma inguinale)

-Derma. Names of cutaneous diseases properly end in -derma (neuter gender), as "scleroderma circumscriptum. The use of "-dermia" is unwarranted

Mongolians, Mongoloids. Some authors have objected to the term "mongolian idiot" because, they say, some of the persons affected have intelligence above the level of idiocy For this reason they have wished to use "mongolian" or "mongoloid" as a noun to replace "mongolian idiot." In addition to the undesirability of the use of an adjective as a noun, neither designation is accurate, for "mongolian" in its strict sense applies to a member of the Mongol or of a similar race and "mongoloid" connotes particularly the physical characteristics. The difficulties seem to be avoided if one uses "mongolism" as the name for the condition and speaks of the persons affected as "persons with mongolism." (Though "mongolism" is preferable to "mongolian idiocy," the latter, as well as "mongolian idiot," may be used if an author wishes)

Infection vs. Infestation In accordance with the report of a specially assigned committee of the American Society of Parasitologists, the word "infection" is used with regard to bacteria protozoa and helminths, while the word "infestation" is reserved for invasion by arthropods, including ticks, mites and insects.

-Emia Words. Usage among physicians and the definitions in medical and in general dictionaries show great inconsistency in the significance attached to words ending in "-emia" and prefixed by "hyper" or "hypo-" Sometimes an "-emia" is considered as the presence of a substance in the blood sometimes, as an excess sometimes, even as an abnormally small amount. Some authors always employ the prefix "hyper" when they wish to state that an excess was present others use the -emia word—for instance glycemia —alone

To avoid confusion it is well to use such words in the following manner

	To denote
-emia" (e.g. lipemia)	presence of a substance in the blood
"hyper—emia (e.g., hyperglycemia)	presence of an excess
"hypo—emia (e.g. hypocholesterolemia)	presence of an abnormally small amount

Official Nomenclature. Certain scientific bodies, including the American Chemical Society the International Zoological Congress, the Bureau of the Census, the American Roentgenologic Association, the National Conference on Nomenclature of Disease and the German Anatomical Society in Basle, Switzerland, which published the Basle Nomina Anatomica (abbreviated BNA) have adopted official codes of nomenclature. Ordinarily it is advisable to employ the terms and spellings established by such organizations. The "Standard Nomenclature of Diseases and Operations" is a periodically revised authority in its field.

6
Spelling

Spelling should be consistent; the writer should follow a definite style, preferably that adopted by the periodical to which he wishes to submit a manuscript. Some publications follow conservative spelling; others have adopted reformed spelling. Many medical publishers make it a practice to follow "Blakiston's New Gould Medical Dictionary" or Dorland's "The American Illustrated Medical Dictionary" as standards for medical terms, and "Webster's New International Dictionary" or "Funk & Wagnalls New Standard Dictionary" for other words.

I prefer certain special usages, as here listed:[1]

abstracter
accommodate
acinous
adaptable
adenosine
adiadokokinesis
admissible
afterward
aline
alinement
alkalis
alkalization
alkalize
allotted
amebicide
ampul
anaerobic
analogous
ancylostoma
aneurysm
angiitis
ankylosis
appendectomy
appendical
argentophilic (adj.)
arrhythmia
arsphenamine
artefact
ascendant (noun)
bacteremia
basophilic (adj.)
benefited
beside (by the side of)
besides (in addition to)
blennorrhea
bougienage
bromide
bromine
burr
calix
calory
calvaria
cannula
cantaloup
carotene
catabolism
centrifugation
centrifuge (verb)
chlorophyll
cholangitis
cholesteremia
cholesterol
cholesterosis
choroid
cigaret
clue
cocaine
-coccic (adj. ending)
coccidioidal
combated
confrère
cooperation
criticize
critique
crystalline
curet
curettage
curettement
cyclothymic
débride
defense
demyelinate

[1] A few words concerning the spelling of which there is no inconsistency have been included in the list because they are frequently spelled incorrectly in manuscripts.

demyelination
descendant (noun)
desiccate
devise (verb)
diadokokinesis
dietitian
dilatation (state of being dilated)
dilation (act of dilating)
diphtheritic
discernible
disk
dispatch
distention
drachm
dullness
embarrass
embed
embryos
employee
enclosed
endameba
endochondral
endorse
eosinophilic (adj.)
epithelization
epithelize
exophthalmos
faker
fantasy
fantom †
fiber
fulfill
fulness
fungous (adj.)
fungus (noun)
gage
glycosuria
gray
grip
guaiacol
hemianopsia
hemopoietic
hiccup
hilus
homogenization
homogenize
hyalin (noun)
hyaline (adj.)
hypophysial
impracticable
inoculate
insanitary
insure
intern
intrachondrial
intravenous
intussusception
ipsilateral
lacrimal
leukemia
leukocyte
lymphangitis
lyophile
lyse
lysozyme
malpighian
mamilla
mamillary
mammary
marasmic
microglobocytes
migraine
mold
mosquitoes
mucopus
mucous (adj.)
mucus (noun)
multilocular
mycotic
myelinate
myelination
myocardial
negligible
occurring
omental
ophthalmology
oxidase
papilledema
paries
pedicel (*bot.*, stem)
pedicle (*anat.*, vertebral process; *med.*, stem of tumor)
penile
periangiitis
periarticular
pericholangitis
perilymphangitis
perineural (around the nerve)
perineurial (referring to perineurium)
perirenal
perivascular
peroxidase
phagocytose
phlorhizin
phosphorus
physicochemical (pertaining to physical chemistry or to physics and chemistry)
physiochemical (pertaining to physiologic chemistry)
pipet
piriform, piriformis
pneumo- (of air)
pneumono- (of the lung)
pontile
practice
precox
premycotic
preventive
previa

* Exception to rule.
† When "phantom" is used in the sense of model, as in "phantom experiments," the "ph" spelling should be used.

prodrome
promoter
pruritus
psychoanalysis
putrefy
pyretic
pyrimidine
pyrrole
quinacrine (atabrine)
radical (adj)
radical (*chem.*, group of atoms *philol.*, part of word)
radicle (*anat.*, root or rootlike structure)
rale
raphe
reenforce
résumé
rhythm
rime
role
rosette*
sagittal
Salpêtrière
sanatorium
scirrhous (adj)
scirrhus (noun)
serviceable
[sic]
sinal
skeptical
skillful
sprue
stable
streptotrichal
sulfhydril
sulfobromophthalein
supersede
technic
thermostable
thromboangiitis
thrombopenia
thrombopenic
timbre* (of tone)
titer
tonsillitis
toward
translator
tubercular (nodular)
tuberculous (pertaining to tuberculosis)
tuberous
unpractical
vacuolate
vacuolation
venipuncture
ventrifixation
verruca peruviana
verrucous
villous (adj)
vitamin
ward (suffix)
whisky
wilful
xanthophyll

* Exception to rule.

SIMPLIFIED SPELLINGS

The following simplified spellings, which have been approved by a committee of the editors of the publications of the American Chemical Society have been adopted for the publications of the American Medical Association *e* for *ae*, as in anesthetic, hemoglobin *f* for *ph* in sulfur and the sulfur compounds *f* for *gh*, as in draft *et* for *ette* as in pipet *ze* for *se*, as in analyze *l* for *ll* in words like distil (when the accent is on the last syllable the *l* is doubled in participles, as *distilled* also in *monosyllables*, as *still*), *l* for *ll*, as in fulness *e* for *oe* as in pharmacopeia, *or* for *our*, as in behavior, *er* for *re*, as in fiber; and *mold* not *mould* *gage* not *gauge* and *role* not *rôle*

For words ending in *og*' or *ogue*' the form listed as preferred in "Blakiston s New Gould Medical Dictionary' or in Webster's New International Dictionary' is used If the "*og*' and the *ogue* forms are given as in equally good usage, the *og*' spelling is chosen

NAMES OF PERSONS

Special attention should be given to the spelling of names of persons. The American Medical Directory may be consulted for the names of physicians in the United States. Directories and lists of physicians of foreign countries are available in medical libraries. "Who's Who" may prove valuable. Names of well known investigators are found in medical dictionaries. When an article or a book is consulted and cited, the author's name should be copied correctly, special attention being given to the insertion of accents in a foreign name.

In the following list are a few names that are frequently misspelled:

Bence Jones, Henry
Berkefeld
Darkshevich
de Fortuyn, Droogleever
Déjerine
del Río-Hortega, Pío
Greifswald
Kjeldahl
Korsakoff
Küstner (Prausnitz-Küstner reaction)
Little, E. G. Graham
MacCallum, W. G.
McCollum, E. V.
Metchnikoff
Neelsen (Ziehl-Neelsen stain)
Pavlov
Rinne
Šafár
Schick, Béla
Shwartzman, Gregory (Shwartzman phenomenon)
Tallqvist
Van Gieson
Wassermann

GEOGRAPHIC NAMES

For the spelling of foreign geographic names, any recognized modern atlas or the list of the United Nations may be followed. When two spellings are given, the anglicized form is preferred.

In the following list are a few geographic names which are encountered frequently in manuscripts:

Berne (Switzerland)
Brussels (Belgium)
Czechoslovak (adj.)
Czechoslovakia
Danzig
Frankfort on the Main (Germany)
Göteborg (Sweden)
Leipzig (Germany)
Liège (Belgium)
Munich (Germany)
Netherland (adj.)
Netherland East Indies

Netherlands
Prague (Czechoslovakia)
Rumania
San Jose (Calif.)
San José (Costa Rica, Uruguay)
Serbia
Yugoslavia
Zurich (Switzerland)

Other rules concerning geographic names will be found in the chapter entitled "Abbreviations."

DIVISION OF WORDS INTO SYLLABLES

The following four rules have been established by "Funk & Wagnalls New Standard Dictionary" for the division of words

Rule I A consonant or a digraph or trigraph between two vowels goes into the later syllable when the first vowel is long half long or obscure (except -er as in gen-er al) as, fa tal sea-son, sepa rate pro-gram, seda tive, omi nous, mecha nism, pecu liar pro-phetic, medi-cal, practi-cal fa ther me tallic, mo-nopo-ly, pre sent (v), de throne, ca pacity, pro-gress (v), ca pable, proce-dure.

Rule II. A consonant between two vowels goes into the earlier syllable when the first vowel is short and has any stress as, prod uct, rap-id, pres-ent (n.) vis-it, ton-ic, bus-y crit ic, cyn ic, flor id, char ity, sep-arate.

Rule III. Adjoining consonants usually separate into two syllables as, at tract, con-demn, pam phlet, syl-lable, prac tical, moun tain infan try, connec-tion, produc tive, detec tive, suc-ces-sor defen dant, cor respon-dent, as-sis-tant, mat ting com-pel ling fret ted En-gland

Note Doubled consonants ending a primitive word are kept together before a purely English suffix as, tell-ing, hiss-ing

Rule IV Purely English suffixes (-ed, -er -est, -eth, ing ish, y) are always kept distinct (except when the terminal letter of the primitive word is repeated as in compel ling) as, heat-ed hat-ed bak-er speak-er speak-est, wak-eth search-eth hast ing baptiz ing brak ing break ing freak ish head y

Note Terminations like -al, -ant, -ent, -ive -or are treated as merely anglicized endings (usually of Latin or Greek words taken into English entire but with terminal change) not as separable English suffixes. Thus such confusion as music al, practi-cal, conjunc tive, disjunct-ive, abun-dant, defend-ant

which is found in some other works, is avoided. The treatment here given makes every one of these terminations begin with the consonant.

HYPHENATION

The American Medical Association Press has adopted the policy that hyphens are not necessary when the meaning of double or compound words is clear without them. Some dictionaries use more hyphens than seem to be necessary for clearness.

A hyphen is not used with a prefix unless mispronunciation or ambiguity might result without it.[1] A prefix preceding a proper noun, as in "non-American," requires a hyphen. When "non" or "post" is followed by a word beginning with "n" (or an "n" sound) or "t," respectively, a hyphen should be used, as in "non-nitrogenous," "non-pneumatic" and "post-traumatic." Other prefixes ending in a consonant usually are joined without a hyphen to a word beginning with the same consonant. Occasionally one of the consonants is dropped. For the spelling of such words, the medical dictionaries mentioned or "Webster's New International Dictionary" should be consulted. A prefix of more than one syllable ending in a vowel should be hyphenated before the same vowel, as in "semi-isolated" and "hypo-ovarian," except in chemical or other pharmaceutic names. One should write "endoderm and ectoderm" rather than "endo- and ectoderm."

When two similar vowels come together in the name of a drug, the name is not hyphenated, as in paraamino benzoic acid. The prefix "co" when used to refer to an agent is hyphenated, i.e., co-worker, co-author. When "co" refers to a state or condition, the word is written without a hyphen, i.e., coexistent.

A few general rules governing the formation of compounds of certain types may be given. (These rules do not apply, of course, to words, such as "background," which have long been established as one word and are so listed in general dictionaries.)

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[1] It was formerly the rule of that press to hyphenate all prefixes of more than one syllable ending in "a" or "o" when followed by a vowel. Since the application of this principle led to inconsistency between the forms of similar words and between the spellings thus devised and those given in most of the standard dictionaries, this practice has been discontinued except when ambiguity or mispronunciation might result from omission of the hyphen.

1 Compounds the second member of which represents an agent, either a person or a thing or a type of work are written as two words.

behavior analyst	metal work
iron worker	needle carrier
lens cutting	

Exception proofreader proofreading, pacemaker

2. Letters (designating shape or used with special significance) need not be joined with a hyphen to a following noun

beta streptococci	Y *zone*
T tube	Y incision

Exception x-ray

3 Compounds formed with "end," "back" or "side" are written as two words.

back passage	end results
back pressure	side arm
end organ	side effects
end picture	side passage

Exception background

4 Compounds formed with "after" are hyphenated.

after-effects
after treatment

5 When over" and "under" indicate degree, they are joined without a hyphen when they indicate position they are used as separate words.

overexcitement	under side
overstimulate	under surface
undernourished	

6 "Cross' is used as an adjective or adverb and is not joined to a following word

cross immunization	cross passage
cross immunize	cross section

7 *Combinations of "self" with a following word are not hyphenated* unless they are used as compound adjectives preceding nouns

self adjusting	self respect
self evident	*self-adjusting bandage*

8. "Pseudo" and "quasi" are considered as prefixes and are joined to single words without a hyphen. Before compound words they should be used as adjectives.

pseudo diabetes *insipidus*
pseudoxanthoma
quasipsychiatric

9. Nouns and adjectives ending in "up" are hyphenated, verbs are written as two words.

A follow-up examination was made
A flare-up occurred
We followed up the evidence

Exceptions: makeup
setup

10. The suffix "like" is joined without a hyphen when it follows a monosyllable (except one ending in "l") but takes a hyphen when it follows a polysyllable or a monosyllable ending in "l."

conelike
endothelium-like
roll-like

11. "Counter" should be joined to a following single word without a hyphen whenever it can be so written without producing an awkward compound. When it is used with a hyphenated or a two word compound or with a phrase, it should be used as a separate adjective or adverb.

counteract
counterextension
counterirritation
counter reverberations (to avoid doubling the "r")
counter spinal punctures

12. Fold" should be joined without a hyphen to a numeral consisting of one word and used as a separate word when the numeral is composed of two or more words.

twofold	a thousandfold
twenty fold	one hundred fold
twenty-four fold	four thousand fold
a hundredfold	

Proper names used adjectivally are not changed from their original form, as in "Argyll Robertson pupil" (named from Douglas Argyll Robertson) and "Brown-Séquard sign" (named from Charles Edouard Brown-Séquard) The "Binet-Simon test" is named from Binet and Simon, two investigators. Although it is proper to hyphenate such a combination of two names when they are used as a unit modifier they should be joined with "and" when they are used as nouns "the Pels-Macht test, but "the test of Pels and Macht."

Following is a list of word combinations followed by the American Medical Association Press. When compounds similar to those in this list are encountered they should be treated analogously

Adams-Stokes (adj.)
after treatment
air passage
airplane
airway
amino acid
amino nitrogen
aminoacetic acid
ankle drop
Argyll Robertson
arm band
athlete's foot
autointoxication
axis-cylinder
bacillus carrier
barbers' itch
base line
bedridden
bedtime
belles-lettres
Bence Jones
beta streptococci
bile duct
Binet-Simon (adj.)
birth rate
black-out
blindspot
blindworm
blood stream
blood vessel
bloodletting
bone ash
borderline
bow leg
Braxton Hicks
breast feeding
breast milk
brewers' yeast
Brown-Séquard
cannot
carbolfuchsin
carbon dioxide-combining power
case reports
Cheyne-Stokes (adj.)
chickenpox
childbirth
cleancut
clubfoot
coconut
cod liver oil
cogwheel
color blindness
contraindicate
corn starch
cottonseed oil
courthouse
cover glass
cover slip
co-worker
cow's milk
cowpox
cracker meal
cream-colored
cresyl blue
cross section
daylight
downhill (adj. & adv.)
dyestuff
ear drum
ear phone
editor in chief
end result
erythema exudativum
everyday (adj.)
ex-president
eyeball
eyeground
far sight
feebleminded
feedback
fellow men
fellow workers
finger nail
finger tip
fingerbreadth
firsthand
flatfoot
fluidounce
fluidrachm
foodstuff
foolproof
foot and mouth disease
foot candle
foot drop
footplate
forearm
foreleg
forelimb
forequarter
forward most
fowlpox
fresh air camp
frostbite
full-fledged
full term (adj.)
gallbladder
gallstone
gastrointestinal
glassblowers' cataract
goldfish
gram-negative
gram-variable
guinea pig
gutta-percha
hair line
halfway
hang-over
harelip
hat band
hay fever
head piece
head rest
heart block
high school pupil
hindleg
hindlimb
hindquarter
horse serum
hourglass
housemaid's knee
housework
hydrogen ion concentration
hypoacidity

ice bag
ice box
ice pack
ice water
ill health
infra-red
intragroup
iron deficiency state
isamine blue
jaw bone
joint disease
keynote
knee joint
knock knee
lactic acid bacillus
lantern slide
life-termer
lip rouge
lipstick
live stock
long-continued (adj.)
loud speaker
lunchroom
lymph nodes
makeup
man power
medicolegal
meter candle
methylene blue
micromeasurements
micromethod
microorganism
midbrain
midline
milliampere minute
millicurie hours
milligram hour
mother's milk
motion picture
motorcar
mouth piece
nationwide
near point
near sight
nearby (adj.)
nerve head
new growth
new born
no one
nose clip
nose piece
olive oil
oneself
openmindedness
operating room
orang-utan
osteoid-osteoma
outdoors
outpatient
over-all
overfeeding
overnight (adj. & adv.)
pacemaker
pansinusitis
past pointing
per cent
per cent hour
pinhead
pinpoint
pinprick
poison ivy
poppyseed oil
postcard
postmortem (adj. preceding noun)
post mortem (other constructions)
postoffice
postoperative
printers' ink
privatdocent
product-moment method
pulse rate
quicksilver
radioactivity
rat bite fever
Rh factor (when it does not precede a noun)
roundworm
safety pin
Samoa pox
sand fly
school children
seesaw
setup
sheep pox
shellfish
short circuit
short-cut (adj. & v.)
short cut (n.)
shotgun
sickroom
smallpox
so-called
so far as
sometime †
split pea
standpoint
stillborn
stopcock
stopwatch
subject matter
sum total
sun bath
surgeon general
swimmers' itch
symptom complex
test tube
textbook
to wit
today
toe drop
toe nail
tomorrow
tongue-tie
tonight
transatlantic
trypan blue

Exception to rule.
† Often must be two words.

tsetse fly	wartime (adj)	widespread
tuning fork	water supply	worldwide
twenty odd	wavelength	worth while
twofold	well being	wrist drop
ultraviolet	wetnurse	wryneck
un-American	whipworm	
vice president	whooping cough	

Use of Hyphens in Compound Adjective Modifiers. As has been said, hyphens are not necessary when the meaning is clear without them. The principles to be set forth here are generally followed in medical periodicals, exceptions being made only when misunderstanding or confusion might arise. The *tendency is toward elimination* of unnecessary hyphens.

When one of the elements of a compound adjective contains more than one word, an en dash should be substituted for the hyphen, as in "blood sugar–regulating mechanism," "anti–rabbit kidney" ("anti" modifies "rabbit kidney," not "rabbit"), and "multiple sclerosis–like." Such complicated combinations should be avoided whenever possible.

The combinations that are hyphenated when used as unit modifiers preceding their nouns need not as a rule be hyphenated when used in other constructions, for instance as predicate adjectives; specific mention of the exceptions will be made at the end of this section.

The following types of compound adjectives do not require hyphens:

1. *Combinations of an adverb modifying an adjective or a participle.*

well established principles
ill defined methods
newly born infant
an almost cured lesion
a seldom performed operation
the best known book
little stressed complications
far reaching consequences
less evident manifestations
ever increasing importance

Exception: so-called

2. Combinations of an adjective and a noun.

connective tissue changes
full term infant
present day practice
prickle cell layer
slit lamp examination
dark field examination
low grade fever
hanging drop culture
old time customs
round cell sarcoma
wet ashing method
worth while investigations

Exceptions: a dull, lean-ham color (to avoid confusion in meaning)
old-school physicians (to avoid confusion in meaning)

3. Combinations of a noun modifier and a noun.

slide precipitation test
complement fixation test
roentgen ray dermatitis
bone conduction time
dextrose tolerance tests
blood sugar values
bundle branch block

Exceptions: poppyseed oil
cottonseed oil

4. Combinations of a cardinal numeral and a noun.

one day period
a 2 day old boy
a two stage operation
a two platform method
two point discrimination
a 14 week fetus

5. Combinations of an ordinal numeral and a noun.

second grade pupils
third grade material
a third stage operation
first class methods

6. Combinations in which the name of a color is modified by a descriptive noun or by an adjective either descriptive or denoting a secondary color. (A hyphen is needed, however, when two coordinate adjectives of color are used—see paragraph 10, page 86.)

bluish red lesions
olive green lesions

deep blue lesions
slate blue lesions
silvery white lesions
crystal white lesions

7 Miscellaneous, more complicated combinations.

the dilution and concentration test
forward and backward movements
end to end anastomosis
a side to side connection

Exception up-to-date methods (in dictionaries as, and pronounced as, a true compound word)

The following types of compound adjectives require hyphens

1 Combinations in which a noun is used as the object of the present participle of a transitive verb.

habit-forming drugs
skin-sensitizing substances
blood sugar-regulating mechanism
blood-coagulating medium

2. Combinations of a participle with an adverb or a preposition.

heaped-up tissue
broken-off ends

3 Combinations of a noun and a participle.

a breast-fed infant
a dark-adapted eye
time-honored traditions
formaldehyde fixed tissue

4 Combinations of "first" or "last" or an ordinal numeral with a participle.

the last-mentioned author
the first-published article
the first-removed suture
the third born child

5 Combinations of "long" and a participle.

long-standing tuberculosis
long-established customs
a long-continued discharge
long-maintained remissions

6. Combinations of two nouns used coordinately to modify another noun

calcium-phosphorus ratio
the Binet-Simon test

7. Combinations of two adjectives used coordinately to modify a noun.
   - toxic-infectious dystrophy
   - manic-depressive psychosis

8. Combinations of two adjectives or a noun and an adjective to modify a noun.
   - tenth-normal hydrochloric acid
   - all-important principles
   - stony-hard lesions
   - species-specific reactions
   - air-tight room
   - water-proof bandage
   - water-resistant fabric
   - Wassermann-fast serum

9. Combinations of an adjective and a participle.
   - full-grown rabbits
   - double-nucleated cell
   - broad-shouldered men
   - American-born children
   - medium-sized papules
   - normal-looking skin

   Exception: new born infant

10. Combinations of two coordinate adjectives of color.
    - blue-black lesions
    - yellow-green discoloration

11. Combinations of a preposition and a noun.
    - under-water therapy
    - before-treatment tests

The following combinations should be hyphenated in any construction in which they occur:

1. Combinations of two coordinate adjectives.
   The psychosis was considered to be manic-depressive.

2. Combinations of two coordinate nouns or adjectives of color.
   The skin was blue-black.

VARIANT ENDINGS OF ADJECTIVES

One of the reforms in spelling adopted by many medical publications is the elimination of the "al" ending on adjectives. This reform was first strongly emphasized by Dr. George M. Gould,[3] in 1896.

[3] Gould, G. M.: Concerning medical language, J. A. M. A. 26:1007 (May 23) 1896.

deep blue lesions
slate blue lesions
silvery white lesions
crystal white lesions

7 Miscellaneous, more complicated combinations.
the dilution and concentration test
forward and backward movements
end to end anastomosis
a side to side connection

Exception up-to-date methods (in dictionaries as, and pronounced as, a true compound word)

The following types of compound adjectives require hyphens

1 Combinations in which a noun is used as the object of the present participle of a transitive verb.
habit forming drugs
skin-sensitizing substances
blood sugar–regulating mechanism
blood-coagulating medium

2. Combinations of a participle with an adverb or a preposition.
heaped-up tissue
broken-off ends

3 Combinations of a noun and a participle.
a breast-fed infant
a dark-adapted eye
time honored traditions
formaldehyde-fixed tissue

4 Combinations of "first" or "last" or an ordinal numeral with a participle.
the last-mentioned author
the first published article
the first removed suture
the third-born child

5 Combinations of "long" and a participle.
long-standing tuberculosis
long-established customs
a long-continued discharge
long-maintained remissions

6. Combinations of two nouns used coordinately to modify another noun.
calcium-phosphorus ratio
the Binet-Simon test

The patient died of alcoholical paretical dementia, superinduced, it is thought, by despair at the orthographical and phonetical conservatism of progressive Americans.

The following list of adjectives with variant endings indicates a trend in modern usage. I consider the "ic" ending preferable in practically all medical words.[4] (Italics have been used to indicate exceptions to this general practice and variations in meaning.)

aeronautic
alphabetic (pertaining to an alphabet)
alphabetical (in the order of the letters of the alphabet)
analytic
anatomic
anthropologic
anthropometric
arithmetical
astronomic
atypical
bacteriologic
biochemical
biographic
biologic
botanic
bronchoscopic
chemical
chronologic
classic (typical)
classical (pertaining to classical civilization and languages)
clinical
criminologic
cylindric
cytologic
dermatologic
dynamic
economic (pertaining to economics)
economical (thrifty)
elliptic
embryologic
empiric
endemic
entomologic
epidemic
epidemiologic
ethnographic
etiologic
etymologic
galenic (*galenical* is the noun)
genealogic
generic
geographic
geometric
gonococcic
gynecologic
hemianopic
histologic
historic (celebrated in history)
historical (relating to history)
hypodermic
hypothetic
hysterical
immunologic
logical
macroscopic
magic (pertaining to magic)
magical (resembling the effects of magic)
meteorologic
methodical
microscopic
morphologic
mystic
neurologic
nosologic
obstetric
ophthalmologic
optic (pertaining to the eye)
optical (pertaining to light or to the science of optics)
otolaryngologic
paradoxic
parasitic
parasitologic
parenthetic

* Except in the sense of "full of or addicted to the use of parentheses," in which "parenthetical" should be used.

[4] It will be noted that for [a] few words in the list two endings and two meanings are indicated. An interesting discussion of such distinctions is given by H. W. Fowler (A Dictionary of Modern English Usage, Oxford, Clarendon Press, 1930, p. 249, article on "-ic(al)").

"The incongruities of medical nomenclature, he said, and the stock-still standing of irrational conservatism lead one to wonder if we are ever to awaken to the need of philologic civilization

' One of my four kind critics once wrote me remonstrating solely on the ground of euphony, against cutting the *al* off the tail end of adjectives. Either one thing or the other if you refuse to say *chemic* and *theoretic*, then you must not say *scientific* and *hydrochloric* If you make us say *chemical* and *theoretical*, then, like a sucking dove we will roar you for *consistency* and ask that you be *scientifical*, or else we will prescribe *nitrical* and *hydrochlorical* acid for your alarming *gastrical* torpor and obstinacy "

Dr Gould submitted the following alarming example of the effects of carrying the 'al ending to extremes

> SOME SCIENTIFIC DIFFICULTIES. The patient was ascitical and cyanotical had an anemical (dicrotical or anacrotical) murmur splanchnical and splenical dullness was pronounced. Neither the allopathical nor the homeopathical consultants could determine whether the affection was *of extrinsical or intrinsical origin, whether anabolical katabolical, atrophical,* septicemical, lithemical, leutical, hemical, hemolytical, thermical, tabetical, hepatical or encephalical. The specialists were called in, and laryngoscopical, ophthalmoscopical, gynecological and otoscopical examinations were made. The laryngoscopical man said a diphtheritical membrane was forming and the phrenical nerve was pressed upon. The next averred the difficulty was esophorical or exophorical, that a blenorrhagical inflammation perhaps a rheumatical iritis, existed. After an *endoscopical examination the gynecological* expert said pelvical (or pubical) disorder was present, and a bad cystical, spermatical and chorionical state of affairs. The ear-man claimed that the disease was specifical, that the otical ganglion was syphilitical and its condition pathognomonical. The diagnostical and prognostical difficulties were certes becoming most prolifical!
>
> As to therapeutical measures, one advised cardiacal and tonical treatment another *hypodermical* one thought *hydriatical methods* good *another antiphlogistical* while still another suggested hypnotical and soporifical agents. Galvanical and faradical electricity as well as statical and franklinical were advised. The surgeon after a diagnostical incision (under anesthetical precautions) spoke of a plastical operation. Caustical applications to the throat were considered good, and the exhibition of prussical, or of borical, nitrical and hydrochlorical acids, perhaps also carbolical with malical and acetical acid drinks. The general physician thought *antineuralgical and antirheumatical* prescriptions sufficient, but the obstetrician would have added oxytocical ones.

The patient had Argyll Robertson pupils.
The Argyll Robertson pupil is unmistakable.
He had Hutchinson teeth.
Shive's solution is prepared as follows:
Shive's solution (or Shive solution) was used.
The Masson stain was employed.
Masson's stain is easily prepared.
He took some Masson stain.

It will be noted that with an article, direct or indirect, the possessive form is not used, the name becoming a noun used as an adjective modifier. In instances in which an article is not used, the possessive form may or may not be employed, depending on the degree of personal relationship or possessiveness, and the emphasis that one wishes to express.

In instances in which two names joined with a hyphen are used as a modifier, the possessive form should never be used.

Niemann-Pick disease
the Prausnitz-Küstner phenomenon
a Kast-Simon test
Hand-Schüller-Christian disease

Possessive of Names Ending in a Sibilant. The possessive of a word of more than one syllable which ends in "s" or in some other sibilant is regularly formed by the addition of an apostrophe. When a word ends in "ce," however, or when the final sibilant is silent, an apostrophe followed by "s" is added.

Hippocrates' writings	Horace's odes
Collins' method	Bourgeois's works

To form the possessive of a monosyllable, an apostrophe followed by "s" is added.

Bard's sign	Wile's comments

CLASSICAL TERMINOLOGY

Medical words are derived almost entirely from Latin and Greek, often from Greek through latinized forms. Errors in medical writing are frequently seen in the use of plurals of classical nouns and in

pathogenic
pathognomonic
pathologic
pediatric
periodic
pharmaceutic (drugs)
pharmaceutical (pharmacy)
pharmacologic
philosophic
physiologic
problematic
psychiatric
psychic
psychologic
rhinologic
rhythmic
roentgenologic
serologic
sociologic
spheric (pertaining to the heavenly bodies)
spherical (sphere shaped)
staphylococcic
statistical
streptococcic
symmetric
teleologic
theoretic
therapeutic
topical
topographic
toxicologic
typographic
zoologic

POSSESSIVE WITH PROPER NAMES

The use of the possessive case with the names of physicians associated with diseases, tests and other entities frequently creates a problem. The solution may be simplified if the question is considered as one of logical English usage rather than as one involving a set form for each phrase. In general, the use of the possessive form relates the thing designated to the worker for whom it is named more emphatically and personally than does the use of the name as an adjective modifier

The following list gives examples of correct usage

Wassermann's test became popular
The Wassermann test is widely used.
A Wassermann test was made.
Three Wassermann tests were made.
Wassermann tests are made daily
Ewing's sarcoma was described in detail.
The Ewing sarcoma is one of the important types.
A Ewing tumor was found.
Six Ewing tumors were studied.
Parkinson s disease is well known.
The man had Gaucher's disease.
Flexner's dysentery is different from Sonne s.
Flexner dysentery was prevalent in that country
The Betz cell is distinctive.
Betz cells were observed
Examination showed numerous Hassall corpuscles.
Meckel's diverticulum is present in some persons.
Bence Jones protein was present.

auras
axillas
cannulas
carcinomas
chondromas
cochleas
collyriums
comedos
condylomas
conjunctivas
corneas
craniums
curriculums
deliriums
dictums
duodenums
endotheliomas
enemas
epitheliomas
erythemas
exanthems
femurs
fetuses
fibromas
fibulas
fistulas
foramens
formulas
foveas
ganglions*
glaucomas
glomuses
gummas
gymnasiums
hematomas
hernias
indexes
inoculums
lacunas
lamellas
laminas
lipomas
lumens
maculas
maxillas
meatuses
mediums (except for "media" of eye)
meniscuses
microns
myceliums
myomas
myxomas
nebulas
oedemas
patellas
perineums
plasmas
plexuses
polyps (plural of polyp)
primiparas
psammomas
pterygiums
radiuses
retinas
sanatoriums
sarcomas
scapulas
scleras
scotomas
septums
sequestrums
serums
solariums
spectrums
sputums
stigmas
stomas
stromas
syllabuses
symposiums
synechias
tibias
traumas
tympanums
ulnas
uveas
vaginas

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* In the *Archives of Neurology and Psychiatry* the plural "ganglia" is used.

Foreign Plurals as Yet Retained

alveoli
ampullae
apparatus
bacteria
bronchi
calices
cortices
criteria
data
desiderata
diverticula
dorsa
emboli
fenestrae
fibrillae
foci
fossae
fundi
hili
humeri
larvae
maxima
media (of eye)
minima
nevi
nidi
nuclei
ova
papillae
pelves
phenomena
plasmodia
pleurae

the terminations of modifying adjectives in accordance with number and gender

As stated earlier in this book, the use of English names for diseases and anatomic structures is desirable. If however an author wishes to use the classical terms he should be careful to see that the forms are correct and should use anatomic names adopted by the BNA (Basle Nomina Anatomica)

Diphthongs. When Latin or Greek words have been taken into the English language, diphthongs need not be retained, and in the publications of the American Medical Association such words are written without diphthongs—e.g hemorrhage, anemia, polycythemia. Diphthongs are not used in Latin names of diseases They are used in names of microorganisms when these names have been officially adopted by scientific societies.

The diphthongs ae' and oe should be written with separate letters in Latin and in German words, and in English words derived from Latin or from Greek through Latin when these words retain the diphthong The ligatures æ and œ' should be used in Old English, in French and in some other modern languages.

Plurals. English plurals should be used whenever available, except, of course, when they are followed by Latin or Greek modifiers. English plurals should be employed for the names of organisms used as common nouns whenever they can be formed easily (amebas, spirochetes, uncinarias, rickettsias but streptococci and staphylococci) All names ending in a are given English plurals except those in the accompanying list of classical plurals as yet retained.

The plural of the Latin neuter word punctum (a point) is 'puncta, though it is not infrequently misspelled punctae as if feminine

The following plural forms have been adopted by the American Medical Association Press

Accepted English Plurals

abdomens	anlages	apexes
acetabulums	antrums	appendixes
amebas	aortas	areolas

Latin words of the second declension ending in "us," such as lupus erythematosus, are masculine whereas words of the third declension ending in "us," such as ulcus molle and corpus luteum, are neuter

Nouns ending in "is," with a few unimportant exceptions, are feminine. Examples are dermatitis factitia neuritis nodosa and arthritis fungosa.

"Callositas" is a feminine noun, but "erysipelas" is neuter For tunately these words seldom are followed by qualifying adjectives.

Glaring errors which occur frequently in medical writing concern the comparative forms of the words "magnus" (large) and "parvus" (small) The comparative forms are, respectively "major" and "minor " which are declined in the nominative as follows

	Masculine	*Feminine*	*Neuter*
SINGULAR	major	major	majus
PLURAL	majores	majores	majora
SINGULAR	minor	minor	minus
PLURAL	minores	minores	minora

The correct term designating the large lip of the vulva is "labium majus " and for the smaller lip, "labium minus" in regard to these, mistakes are rarely made.

Errors are found at times in speaking of a lesion which is unilateral. The expression "unius lateralis" is incorrect. Either the adjective "unilateralis" or the two words "unius lateris" may be used, "unius" being the genitive singular of the adjective "unus, -a, um" and "lateris" the genitive singular of the noun "latus" (nevus unilateralis, nevus unius lateris)

For further information on classical terminology the reader is referred to an article by the late Dr Howard Fox.[1]

[1] Fox, Howard Common errors in dermatologic terminology Arch. Dermat. & Syph. 7 499-504 (April) 1923.

polypi (plural of polypus)
protozoa
puncta
quanta
rami
rugae
sarcinae
sequelae (plural of sequela)
spermatozoa
striae
uteri
verrucae
vertebrae
viscera

Terminations. Terminations of classical nouns and adjectives are often used incorrectly The following table shows the gender of certain nouns according to termination, and these may serve as protypes

Gender of Nouns According to Terminations

Masculine	*Feminine*	*Neuter*
US second declension lupus, nevus	IS psoriasis, dermatitis	US third declension, ulcus, corpus
	A tinea, verruca—*except* hydroa and words ending in MA	MA sarcoma, erythema, chloasma
ES herpes	AS callositas, fragilitas IES scabies, canities	AS erysipelas
EN lichen	E acne	UM molluscum U cornu EN sudamen
X anthrax	X cicatrix, pompholyx	
ER zoster		
IO pernio		
DO comedo	DO livedo GO impetigo vitiligo	ON epidermophyton, kerion

The greatest source of error is provided by words ending in "a." All words that end in "a" in the singular are feminine except for "hydroa" and those ending in "ma" which are neuter e.g hydroa aestival*e* hydroa gravidar*um* erythema bullos*um* chloasma uterin*um* xeroderma pigmentos*um* "Verruca" is often a stumbling block, though according to the rule it is obviously a feminine noun and thus requires a feminine adjective, as verruca plan*a*

Mistakes are constantly made in the words *Spirochaeta* (feminine) and *Treponema* (neuter) The correct uses of these words with the adjectives 'pallidus, a, um and pertenuis, is, -e are *Spirochaeta pallida* and '*Spirochaeta pertenuis* *Treponema pallidum* and *Treponema pertenue* '

6 Names of chemical elements or compounds when spelled out in full

Write in capitals	*Write in lower case*
World War II Civil War	the last great war
Federal Food, Drug and Cosmetic Act	a narcotic act was passed
Hippocratic oath	facies hippocratica, hippocratic finger
the Harvey Lecture	Graduate Fortnight lectures
Southern states	in southern regions
Chicago Medical Society	the various medical societies
North, South, East, West (when they refer to geographic divisions)	north, south, east, west (when they refer to direction)
Christian Science, Christian Scientist	Dr Schweitzer the Christian scientist and musicologist
Vienna School of Medicine	surgeons of the Vienna school
New York City	in the city of Chicago
Gram, Roentgen, as proper names	gram-negative, roentgen rays
Congress (United States)	an international congress

7

Capitalization

Periodicals vary in their use of capitalization. The following principles represent some of the present trends in this matter

Use capitals for

1 The first word of a sentence, of course, as well as a complete sentence that is quoted directly even when it occurs within another sentence.

2. The first word after a colon if it introduces a complete sentence.

3 The initial letters of words in headings, except for conjunctions, articles and short prepositions.

4 Proper names and titles also adjectives derived from them un less they have acquired a special meaning

5 Cited titles of books and articles in text (but see pages 120–129 for style in footnotes and bibliographies)

6 The latinized name of a person used in the genitive case (fissura Rolandi ductus Botalli), except in the scientific name of an organism.

7 The names of phylums, classes, orders, families and genera, when referring to the scientific classification of organisms.

8 Proprietary and trade marked names

9 The initial letter of the symbol of an element (Ca Hg)

Write in lower case

1 The first word of a fragmentary quotation (he urged listening with the third ear)

2. The first word after a colon if it introduces a clause or list (not a complete sentence)

3 Those derivatives of proper nouns which have acquired an independent specialized meaning (bunsen burner cesarean section prussian blue achilles tendon)

4 Species names, even those derived from proper nouns (*Sporotrichum beurmanni*) classes, orders, families and genera when used to designate individual members (an arthropod spirochetes of this type)

5 Generic names of drugs (penicillin chloropropane)

Baltimore	Denver	New Orleans	St. Paul
Boston	Detroit	New York	Salt Lake City
Brooklyn	Indianapolis	Oklahoma City	San Francisco
Buffalo	Iowa City	Omaha	Seattle
Chicago	Los Angeles	Philadelphia	
Cincinnati	Milwaukee	Pittsburgh	
Cleveland	Minneapolis	St. Louis	

When a Canadian city is mentioned, both the name of the province (written in full) and "Canada" should follow the name. (Exception For Montreal, Toronto and Quebec the name of the province may be omitted.)

The name of a foreign country should never be abbreviated The name of the country should be mentioned after the name of a foreign city unless it is clear from the text what country is concerned.

Before a name "Saint" is abbreviated (St. Louis, St. Paul) "Fort," "Mount" and "Santa" or "San," however are not abbreviated (Fort Duquesne, Mount Vernon, Santa Barbara, San Francisco)

Street Addresses. In ordinary text matter at the end of an article, and in general wherever space permits, street addresses should be written out in full. When abbreviation is necessary the following forms are used

441 Vine St.	302–1st Ave.
60 N Grand Blvd.	227–16th St.
50 W 50th Ave.	501–1st St. N.W
5 Bay State Rd.	16th and P Sts.
601 Fullerton Parkway	1500 Medical Arts Bldg.

When a mailing address which includes a postal zone number is cited, no comma is used after the name of the city but the zone number and name of the state are separated by a comma Chicago 10 Ill

FOREIGN ADDRESSES

66 Boulevard Saint Michel, Paris, 6ᵉ France
2 Rue Casimir Delavigne, Paris, 6ᵉ France
Sternwartenstrasse 8, Leipzig, C. 1 Germany
Rambler de Cataluña 72, Barcelona, Spain
Calle de Villarroel 17 Barcelona, Spain
Via Farini 6, Bologna, Italy
9 Wimpole St., London, W 1 England
Mexico, D.F Mexico

8

Abbreviations

In scientific writing abbreviations should be kept to a minimum and should follow a recognized standard. If nonstandard or special abbreviations must be employed, as in tabular or other condensed material they should be explained in a footnote.

ADDRESSES

The following list gives standard abbreviations of the United States Government Printing Office for the states of the Union and for certain of its territories and possessions

Ala.	Ga.	Miss.	N Y	T H.
Ariz.	Ill.	Mo.	Okla.	Va.
Ark.	Ind.	Mont.	Oreg	Vt.
Calif.	Kans.	N C.	Pa.	V I
Colo	Ky	N Dak.	P R.	Wash.
Conn.	La.	Nebr	R.I	Wis.
C.Z.	Mass.	Nev	S C.	W Va.
D C.	Md	N H	S Dak.	Wyo.
Del.	Mich	N J	Tenn.	
Fla.	Minn.	N Mex.	Texas	

As a general rule the names of states which contain only four or five letters should be spelled out (Idaho, Iowa Maine, Ohio and Utah) The names of the other states are abbreviated when they follow the name of a city or county but not when they are used alone (in Cook County Ill in Paterson, N.J in Kentucky)

The names of territories and possessions of the United States other than those listed should not be abbreviated.

It is usually not necessary to mention the state after the names of the following large cities

Fellow of the Royal College of Science	F.R.C.Sc.
Fellow of the Royal College of Surgeons of Edinburgh, in Ireland	F.R.C.S. F.R.C.S.E. F.R.C.S.I
Fellow of the Royal Society	F.R.S.
Fellow of the Royal Society Canada, of Edinburgh	F.R.S.C., F.R.S.E.
Graduate in Pharmacy	Ph.G.
Licentiate of the Royal College of Physicians, London	L.R.C.P
Licentiate of the Royal College of Surgeons, London	L.R.C.S.
Master of Surgery	M.C. or M.Ch.

DATES

In the following list are given the standard abbreviations for the names of the months

Jan.	Apr	Oct.
Feb.	Aug	Nov
Mar	Sept.	Dec.

No abbreviation is used for "May "June" or "July " The names of the other months should be abbreviated in bibliographic references and when both the day and the year are given (Feb. 29 1948)

Frequently in descriptions of cases or of experiments, several dates in the same year are mentioned consecutively The year is usually included in the first date of the series, but only the month and day thereafter until the year changes, as in the following passage

> A man aged 60 was admitted to the hospital on Mar 5, 1947 He was operated on on Mar 25 and was dismissed on May 10 In June 1948 he was readmitted.

"In 1947–1948 may be used to designate the year that includes part of both. "From 1946 to 1948" should be used instead of "1946–1948" in text matter

WEIGHTS MEASURES AND TIME

Units of measurement are abbreviated after numerals but not otherwise Some publishers limit this rule to units of the metric system (except "meter " "liter " "kilometer " and "microgram," which preferably should not be abbreviated) A few other abbreviations are similarly treated a.m., p.m., C., F., D., r For example

10 a.m.	In the morning In the forenoon
7 p.m.	in the afternoon
50	measured in roentgens

NAMES OF PERSONS

No abbreviations except the initials should be used for the names of persons (Thomas E Clark or T E. Clark, not Thos. E Clark Charles E. McFarlane or C. E. McFarlane, not Chas. E. McFarlane)

Titles and Degrees. One should never spell out Mr Mrs.' or "Dr ' before a proper name. Major' should never be abbreviated Other titles are abbreviated *when they are used before the first name* or initials but written in full when used before the family name alone

Prof A. T Reed	Pres. M. A. Brown	Capt. Charles Ryerson
Professor Walton	President Eisenhower	Lieutenant Myerson
Supt. J A. Milton	Major C. A. Wright	Dr Osler

Degrees and titles following names are abbreviated In capital lines in headings, degrees are set in large and small capitals (PH D PH G)

Most medical periodicals put degrees in the order of rank, with Doctor of Medicine taking precedence when an author holds that degree. For instance, one would write Robert Clark, M.D , Ph.D ' but not Robert Clark, M.A. M.D

Abbreviations of Degrees and Fellowships

Bachelor of Arts, Master of Arts	B.A. or A B. M.A. or A.M
Bachelor of Laws	B.L. or LL.B.
Bachelor of Medicine Bachelor of Music	B.M. or M.B.
Bachelor of Science Master of Science.	B.S B Sc. or Sc.B. M S or M.Sc.
Doctor of Comparative Medicine.	M C.D
Doctor of Dental Medicine Doctor of Dental Surgery	D M D D D.S.
Doctor of Laws	J.D or LL D
Doctor of Letters	Litt.D or D Litt.
Doctor of Medicine	M.D
Doctor of Osteopathy	D O
Doctor of Philosophy	Ph.D
Doctor of Public Health	D P H
Doctor of Science	D.Sc or Sc D
Doctor of Veterinary Medicine Surgery	D V M D V.S
Fellow of the American College of Physicians	F A.C.P
Fellow of the American College of Surgeons	F A C S
Fellow of the American College of Dentists	F.A.C D
Fellow of the College of American Pathologists	F C A.P
Fellow of the International College of Surgeons	F I C.S
Fellow of the Royal College of Physicians of Edinburgh of Ireland	F R C P F R C.P E F R C.P I

Fellow of the Royal College of Science	F.R.C.Sc.
Fellow of the Royal College of Surgeons; of Edinburgh, in Ireland	F.R.C.S. F.R.C.S.E., F.R.C.S.I.
Fellow of the Royal Society	F.R.S.
Fellow of the Royal Society Canada, of Edinburgh	F.R.S.C., F.R.S.E.
Graduate in Pharmacy	Ph.G.
Licentiate of the Royal College of Physicians, London	L.R.C.P
Licentiate of the Royal College of Surgeons, London	L.R.C.S.
Master of Surgery	M.C. or M.Ch.

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WEIGHTS MEASURES AND TIME

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10 a.m.	in the morning; in the forenoon
7 p.m.	in the afternoon
50 r	measured in roentgens

3 cm.	marked off in centimeters
4 Kg	per kilogram
10 mg	in each milligram
120 mm.	a few millimeters
98° F	the Fahrenheit scale
1 D	the unit was the diopter
40 C.	the centigrade thermometer

Abbreviations of units of measure are used in the singular form only The following abbreviations for units of the metric system are those recommended in the "Pharmacopeia of the United States

M. = meter		Gm. = gram
dm. = decimeter	Kg = kilogram	dg = decigram
cm. = centimeter	L. = liter	cg = centigram
mm. = millimeter	dl. = deciliter	mg = milligram
	ml. = milliliter	
	cc. = cubic centimeter	
	cu. mm. = cubic millimeter	

The following standard abbreviations are permitted by some publishers in tabular matter or formulas only

Å	angstrom unit	μμ	millimicrons
a. c.	alternating current	ma.	milliampere
ax.	axis	ma. min	milliampere minute
cyl.	cylinder	mc.	millicurie
d c.	direct current	mc. hr	millicurie hour
d. v	double vibration	mEq	milliequivalent
db.	decibel	mg hr	milligram hour
dr	drachm	min.	minute
ft.	foot	mM	millimol
gal.	gallon	mo.	month
Gm. cal.	gram calory	oz.	ounce
gr	grain	p.d.	prism diopter papilla diameter
hr	hour	pt.	pint
in.	inch	qt.	quart
kv	kilovolt	sec.	second
kv a.	kilovolt ampere	2d	second
lb.	pound	3d	third
μ	microns	yd	yard

There is a tendency in some fields to drop the periods in many abbreviations, especially in abbreviated units of measurement.

ABBREVIATIONS PERMISSIBLE IN OPHTHALMOLOGY

Abbreviations of measurements of squint, especially in series of values

HP	hyperphoria
HT	hypertropia (with L or R)
XT and ET	exotropia and esotropia (with L or R)

Similar abbreviations

General

Δ	prism diopters
f.c.	foot candles
p.d. or P.D.	papilla diameter
R.E. and L.E.	right eye and left eye
D	diopters (with values)

sph. (for spherical) and cyl. (for cylindrical) in such expressions as "+ 1.25 D. sph." "− 2.00 D. cyl."

Omission of D. and perhaps the sph. and cyl. in refractions:

Thus + 1.25 sph. − 2.00 cyl., axis 90

Or

+ 1.25 − 2.00 axis 90

Near used alone in expressions like "accommodation for *near* was normal."

Perimetry: "field for 3/330 white" or "field for white, 3/330."

MISCELLANEOUS ABBREVIATIONS

"Day" and "days" should never be abbreviated, even in tables.

Names of chemical elements should be abbreviated only in tabular matter and formulas. Chemical symbols are not followed by a period (Ca, Hg).

One writes "an angle of 45 degrees." Symbols may be used if the expressions are complex and recur frequently, as in "angles of 15° 30' 15" and 45° 6'." The symbol for "degrees" may be omitted in expressions of temperature: thus, one may write "100 F." and "39 C." rather than "100° F." and "39° C."[1] The word "degree" should be

---

[1] It is necessary, however, to speak of "a rise of 1 degree (F.)." Body temperature should be expressed preferably according to the Fahrenheit scale. If it is given in centigrade degrees, the Fahrenheit equivalent should follow in parentheses.

spelled out in expressions of latitude and longitude if minutes and seconds are not mentioned, as in the phrase a difference of 3 degrees of latitude." In some expressions the word degree may be omitted, as in "latitude 42 north.' Write "8° 45′ 15″

In tables both clock time and extent of time may be written in figures. The time 25 minutes and 16 seconds past 3 o clock may be written ' 3 25 16 a period of 14 hours, 45 minutes and 30 seconds may be written 14° 45′ 30″

British money, when set in figures, is expressed as follows £23 7s. 3d

American money is expressed as follows $15, $20 42 56 cents.

In tables, signs and abbreviations should be used in place of words as much as practicable Use + and − for positive and negative >, < and = for greater than, less than and equals ♂ or □ for male and ♀ *or* ○ *for female.* The sign % may be used in tables, but not elsewhere.

In text matter a reaction or degree of change should be expressed with words rather than with symbols (4 plus positive negative plus-minus) In tables, symbols may be used as is most convenient in the *individual instance*

The basal metabolic rate is expressed in text matter as '−5 per cent' or +18 per cent

Dimensions are given as 4 by 5 by 7 inches, not 4 × 5 × 7 inches.

In ordinary matter expressions of dosage should be spelled out. Write 4 grains (0 25 Gm.) three times a day not gr iv, t. i d"

Except where condensation is an object, as in tables, one should write eighth molar' or "tenth normal not *M/8* decinormal or N/10 If it is desirable for some special reason to use the fraction the slant instead of the horizontal line should be used to separate the numerator and the denominator At times, when large or complicated *fractions are involved, it may be clearer to write* 0 25 normal or 0 03 normal Multiples of normal should be expressed as "three times normal rather than as 3/*N*

The abbreviation for the expression 1 to 1 000 is 1 1 000 Either form may be used according to the author's preference

SCIENTIFIC NAMES OF ORGANISMS

Bacteria. After the name of a species has been given in full, as "*Treponema pallidum*" the generic name should be abbreviated, as "*T pallidum*," throughout the paper

This rule applies only to the *same genus* For instance, after *Streptococcus fecalis* has been mentioned once, *Str fecalis* is used but if another genus name is then mentioned, *Streptococcus fecalis* must be written out the next time it appears.

In tables, abbreviations may be used if the full name is given in the text, either preceding or following the table. If some organisms are mentioned in the table which are not referred to in the text and the application of this rule would give the table an awkward appearance, it usually is better to write out all the names in the table. If there are only two or three organisms which are not mentioned in the text and they are species of a common genus, such as *Staphylococcus* the abbreviation for which is unmistakable, or of a genus other species of which are mentioned so frequently in the text that there is no danger of confusion, the genus names may be abbreviated in the table.

A name should be written in full in the heading for an abstract or a report in a society transaction and also the first time it appears in the text. In society transactions, after a name has been given in full once in a report, it should be abbreviated throughout that report and the discussion thereon if the same organism is mentioned in another report the name should again be written in full.

Fungi and Parasites. Names of organisms which are well known to physicians, such as *Epidermophyton* and *Taenia*, are subject to the rules that govern the abbreviation of names of bacteria There are many names, however both of genuses and of species, which do not yet appear in medical dictionaries. In most medical publications abbreviations are not used, as a rule, unless the name appears in "Blakiston's New Gould" or Dorland's "American Illustrated" medical dictionaries together with a definition If some of the names mentioned in an article have usable abbreviations and others do not, it is well to spell out all the names in the article

Other Generic Names. Names of plants, animals and insects should not be abbreviated

MISCELLANEOUS RULES

The expression ' figure 1 may be spelled out or abbreviated in ordinary text matter One may write fig 1" in parentheses with a lower case *f* but *Fig 1* ' is used at the beginning of a legend with a capital *F* When ' Figure 1" comprises the whole legend, it should be spelled out and capitalized. Examples follow

The heart (fig 1) shows decided enlargement.
The heart shows decided enlargement (see figure 1)
Fig 1 Enlargement of the heart.

Write fourth cervical" and ' second lumbar ' rather than ' C IV' or "L 2, except in tabular matter

"BCG ' and "QRS' are written without spacing P R,' "S-T' and ' RS-T" intervals are hyphenated

BAL (British antilewisite) is used without periods or spacing "U S P ' N.N.D , ' N F and "BNA are written without regular spacing These abbreviations may follow the name of a drug without the interposition of a comma.

Tuning forks are designated as follows C-2 C-1 C, c 1 c 2, etc., capital letters being used for sounds below middle C and lower case letters for those above it.

Both in the text and in tabular matter no 3 should be used rather than number 3 Whenever possible, no should be omitted (communication 3 Jaeger's test type 1)

When 'page 6 appears in the text, the word page should not be abbreviated

Abbreviations of names of periodicals are given at the end of this book, and other abbreviations used chiefly in footnotes and bibliographies are given in the chapter entitled Bibliographic Material" (page 117)

Abbreviations used only in prescriptions (or occasionally in tables) are given in the chapter entitled Pharmaceutic Products and Prescriptions' (page 113)

9
Numbers

Numbers appear frequently in scientific—especially in statistical—articles. It is sometimes difficult to determine when they shall be spelled out and when put in figures. The American Medical Association Press has therefore adopted various general and specific rules governing such usage in its publications.

Numbers of patients or cases or (when considered analogously) animals or specimens should be put in figures. If "one" is used in an indefinite rather than in a numerical sense (for instance, if "a patient" might be substituted), it may be spelled out.

Numbers designating measurements should, in general, be put in figures.

Miscellaneous numbers, concerning which instructions are not included in the specific rules to be given, should be spelled out for the numbers one to nine; for 10 and above figures should be used.

> A hospital of 49 rooms was built.
> We examined three fingers.
> He had consulted four physicians.

If, however, in an individual article there are several large numbers of items of any one category—for instance, injections or hospitals—it is advisable to use figures for all the numbers in that group.

SPECIFIC RULES

Set in figures both whole numbers and fractions denoting:

1. Numbers of cases or patients or (when considered analogously) animals or specimens in text and in roman and italic sideheads when corresponding figures appear in the text.

2. Values for measurements, such as temperature, pulse rate, respiratory rate, blood count, specific gravity, age, weight, height, length, breadth, area, capacity, degrees, percentages and ratios. (The amount of a dose, as a measurement, is put in figures, but the number of doses is considered with the miscellaneous numbers in the paper and spelled out.)

3. Dates: Jan. 18, 1948; January 18.

4. Clock time: 7 a.m., 6:30 p.m.; 15 minutes and 20 seconds past 4 p.m.

5 Sums of money $250 $1.50 75 cents, £15 8s. 3d

6 In tabular matter and in the headings of tables, every number that can be so expressed

7 Numbers indicating serial position page 22 case 3 table 5 chapter 10 figure 1 group 1 type IV grade 2 cat 3 A dog 1096 (note omission of comma)

8 Experimental and laboratory results which involve duration of time.

9 Numbers above nine representing length of time for 30 minutes after 10 hours 15 minutes past 1 p.m. 18 years ago a 24 hour culture.

10 Any one digit number used in conjunction with a two digit number 8 to 12 cell layers.

Spell out

1 Ordinal numbers the eighth patient on the tenth day in the eighteenth century

2 Numbers used as nouns or in an indefinite sense in the nineties, per hundred per thousand, by fifties, per hundred grams (but per 25 pounds)

3 Numbers of doses or injections, families, litters, cultures, determinations, chapters.

4 All numbers except those of four digits in titles or subtitles of articles, in titles of abstracts and in titles cited in footnotes.

Numbers are spelled out as follows

one-half the patients (hyphenate where "of" is omitted)
half the patients
a third of the patients
three fourths of the patients
one half hour
half an hour
a half-hour
two and a half hours
three and one-half hours
increased by two thirds
twenty four
one hundred and twenty-six
twenty-eight hundred
two thousand, three hundred and sixty
one million, three thousand, five hundred and one

A fraction should be hyphenated when it is used as an adjective, as in the phrase one half hour or when ambiguity might result without the hyphen when it is used as a noun the hyphen may be omitted

MISCELLANEOUS EXAMPLES

3 drops, capsules, tablets
2 tablespoons; 2 teaspoons
3 disk diameters
4 fingerbreadths
1 erythema dose
½ erythema dose
1 skin unit
50 roentgens
2 unit skin doses
three doses of neoarsphenamine
eight injections of a bismuth preparation
temperature of 96° F
a rise of 1 degree (F.)
4 plus (not four plus or ++++ except in tables)
The epithelium contained from 2 to 10 cell layers.
His diet included one apple twice a day and two glasses of water each morning and each afternoon.
a 6 month fetus; a 9 week fetus; a 10 day embryo
a 10 mm. embryo
a 6 day old child, a 10 hour old boy; an 8 week old girl; a 10 month old child, a 30 year old man
a six week period
after six weeks' treatment
after six weeks of treatment
1947–1948 (the year including parts of both)
1946 to 1948
1947 and 1948
6 year molars
6 pounds 8 ounces
3 feet 6 inches
She was six months pregnant.
The child was born one month prematurely.
a 24 hour culture
size 4A shoes
2d
3d
pneumococci of type III; the type V pneumococcus, Pneumococcus type I
per hundred cubic centimeters; per thousand grams; per 10 Gm.[1]
in each hundred cubic centimeters [or] in each 100 cc.

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[1] "Per hundred cubic centimeters" is written rather than "per 100 cc." because the latter phrase would be read "per *one hundred* cubic centimeters," an idiom not likely to be encountered. *Per 10 Gm.* is clear since the phrase can be read in only one way. Either "in each 100 Gm." or "in each hundred grams" is idiomatically correct; consequently either may be used, according to an author's preference.

In each 10 Gm.
layers I to VI of the cortex
leads I, II and III[3] of the electrocardiogram
the T wave in lead I T_3 the QRS complex in lead III[4]
6 Gm. is used
5 drops was given
radioactive phosphorus—P^{32}
the valence of a radical—PO_4

EQUIVALENT VALUES

Metric Equivalents. *In scientific matter in the publications of the* American Medical Association the metric units are given first, followed, in parentheses, by values *according to other systems. In some* instances an exact equivalent is needed—for instance, when a small dose of a drug or the thickness of a lens is concerned In others, an approximate equivalent is preferable. The diameter of a cutaneous lesion measuring 2 inches should be expressed as ' 5 cm. rather than as '5 08 cm One should consider the accuracy with which measurement of the thing under consideration could be made.

Centigrade measurements may be converted to Fahrenheit multiply by 9, divide by 5 and add 32. Fahrenheit may be converted to centigrade subtract 32, multiply by 5 and divide by 9

In computing approximate equivalents, one should compute the exact equivalent to from one to three decimal places and then take the nearest approximate value, rather than multiply by an approximate value (such as 2.5 cm. for 1 inch rather than 2.54 cm) Approximate equivalents for metric and apothecaries systems may be found in most books issued under the auspices of the Council on *Pharmacy* and Chemistry Included are New and Nonofficial Drugs, 'Useful Drugs, National Formulary' and Epitome of the United States Pharmacopeia and National Formulary

In the following tables are given equivalent values that are frequently needed

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[3] Most journals devoted to cardiology use "*leads I II and III*" *The Journal of the American Medical Association* uses "leads 1 2 and 3" because arabic numerals are preferred whenever possible.

[4] "*The T wave in lead III*" *is perhaps preferable to* "T_3." When many values are given, however the shorter expression is convenient. It is advisable to be as consistent as possible within an article and not to jump unnecessarily from one form to the other

AVOIRDUPOIS WEIGHTS

OZ.	GM.	KG.	LB.	GM.	KG.	LB.	GM.	KG.
1	28 35		61	27,669 11	27 7	131	59,420 55	59 4
2	56 70		62	28,122 70	28 1	132	59,874 14	59 9
3	85 05		63	28,576 30	28 6	133	60,327 73	60 3
4	113 40		64	29,029 89	29 0	134	60,781 33	60 8
5	141 75		65	29,483 48	29 5	135	61,234 92	61 2
6	170 10		66	29,937 07	29 9	136	61,688 51	61 7
LB.	GM.	KG.	67	30,390 66	30 4	137	62,142 10	62 1
¼	113 40	0 11	68	30,844 26	30 8	138	62,595 70	62 6
½	226 80	0 23	69	31,297 85	31 3	139	63,049 29	63 0
¾	340 19	0 34	70	31,751 44	31 8	140	63,502 88	63 5
1	453 59	0 5	71	32,205 03	32 2	141	63,956 47	64 0
2	907 18	0 9	72	32,658 62	32 7	142	64,410 06	64 4
3	1,360 77	1 3	73	33,112 22	33 1	143	64,863 66	64 9
4	1,814 37	1 8	74	33,565 81	33 6	144	65,317 25	65 3
5	2,267 96	2 3	75	34,019 40	34 0	145	65,770 84	65 8
6	2,721 55	2 7	76	34,472 99	34 5	146	66,224 43	66 2
7	3,175 14	3 2	77	34,926 58	34 9	147	66,678 02	66 7
8	3,628 73	3 6	78	35,380 18	35 4	148	67,131 62	67 1
9	4,082 33	4 1	79	35,833 77	35 8	149	67,585 21	67 6
10	4,535 92	4 5	80	36,287 36	36 3	150	68,038 80	68 0
11	4,989 51	5 0	81	36,740 95	36 7	151	68,492 39	68 5
12	5,443 10	5 4	82	37,194 54	37 2	152	68,945 98	68 9
13	5,896 69	5 9	83	37,648 14	37 6	153	69,399 58	69 4
14	6,350 29	6 4	84	38,101 73	38 1	154	69,853 17	69 9
15	6,803 88	6 8	85	38,555 32	38 6	155	70,306 76	70 3
16	7,257 47	7 3	86	39,008 91	39 0	156	70,760 35	70 8
17	7,711 06	7 7	87	39,462 50	39 5	157	71,213 94	71 2
18	8,164 65	8 2	88	39,916 10	39 9	158	71,667 53	71 7
19	8,618 25	8 6	89	40,369 69	40 4	159	72,121 13	72 1
20	9,071 84	9 1	90	40,823 28	40 8	160	72,574 72	72 6
21	9,525 43	9 5	91	41,276 87	41 3	161	73,028 31	73 0
22	9,979 02	10 0	92	41,730 46	41 7	162	73,481 90	73 5
23	10,432 61	10 4	93	42,184 06	42 2	163	73,935 50	74 0
24	10,886 21	10 9	94	42,637 65	42 6	164	74,389 09	74 4
25	11,339 80	11 3	95	43,091 24	43 1	165	74,842 68	74 8
26	11,793 39	11 8	96	43,544 83	43 5	166	75,296 27	75 3
27	12,246 98	12 2	97	43,998 42	44 0	167	75,749 86	75 7
28	12,700 57	12 7	98	44,452 01	44 5	168	76,203 45	76 2
29	13,154 17	13 2	99	44,905 61	44 9	169	76,657 05	76 7
30	13,607 76	13 6	100	45,359 20	45 4	170	77,110 64	77 1
31	14,061 35	14 1	101	45,812 79	45 8	171	77,564 23	77 6
32	14,514 94	14 5	102	46,266 38	46 3	172	78,017 82	78 0
33	14,968 53	15 0	103	46,719 97	46 7	173	78,471 42	78 5
34	15,422 13	15 4	104	47,173 57	47 2	174	78,925 01	78 9
35	15,875 72	15 9	105	47,627 16	47 6	175	79,378 60	79 4
36	16,329 31	16 3	106	48,080 75	48 1	176	79,832 19	79 8
37	16,782 90	16 8	107	48,534 34	48 5	177	80,285 78	80 3
38	17,236 49	17 2	108	48,987 93	49 0	178	80,739 37	80 7
39	17,690 09	17 7	109	49,441 53	49 4	179	81,192 97	81 2
40	18,143 68	18 1	110	49,895 12	49 9	180	81,646 56	81 6
41	18,597 27	18 6	111	50,348 71	50 3	181	82,100 15	82 1
42	19,050 86	19 1	112	50,802 30	50 8	182	82,553 74	82 6
43	19,504 45	19 5	113	51,255 89	51 3	183	83,007 34	83 0
44	19,958 05	20 0	114	51,709 49	51 7	184	83,460 93	83 5
45	20,411 64	20 4	115	52,163 08	52 1	185	83,914 52	83 9
46	20,865 23	20 9	116	52,616 67	52 6	186	84,368 11	84 4
47	21,318 82	21 3	117	53,070 26	53 1	187	84,821 70	84 8
48	21,772 41	21 8	118	53,523 85	53 5	188	85,275 30	85 3
49	22,226 01	22 2	119	53,977 45	54 0	189	85,728 89	85 7
50	22,679 60	22 7	120	54,431 04	54 4	190	86,182 48	86 2
51	23,133 19	23 1	121	54,884 63	54 9	191	86,636 07	86 6
52	23,586 78	23 6	122	55,338 22	55 3	192	87,089 66	87 1
53	24,040 37	24 0	123	55,791 81	55 8	193	87,543 26	87 5
54	24,493 97	24 5	124	56,245 41	56 2	194	87,996 85	88 0
55	24,947 56	24 9	125	56,699 00	56 7	195	88,450 44	88 5
56	25,401 15	25 4	126	57,152 59	57 2	196	88,904 03	88 9
57	25,854 74	25 9	127	57,606 18	57 6	197	89,357 62	89 4
58	26,308 33	26 3	128	58,059 77	58 1	198	89,811 22	89 8
59	26,761 93	26 8	129	58,513 37	58 5	199	90,264 81	90 3
60	27,215 52	27 2	130	58,966 96	59 0	200	90,718 40	90 7

AVOIRDUPOIS WEIGHTS—(*Continued*)

1 short ton = 2,000 lb. = 90 72 Kg	= 0 9072 metric ton
1 long ton = 2,240 lb. =	= 1 01605 metric tons
1 metric ton =	= 1,000 Kg =	1 1023 short tons 0 9842 long ton

40,000 short tons = 36,300 metric tons

APOTHECARIES' AND METRIC WEIGHTS

GRAINS	GRAMS	GRAINS	GRAMS	GRAINS	GRAMS	GRAINS	GRAMS
1	0 06	16	1 04	31	2 01	46	2 98
2	0 13	17	1 10	32	2 07	47	3 04
3	0 19	18	1 16	33	2 14	48	3 11
4	0 26	19	1 23	34	2 20	49	3 17
5	0 32	20	1 29	35	2 27	50	3 24
6	0 39	21	1 36	36	2 33	51	3 30
7	0 45	22	1 42	37	2 40	52	3 36
8	0 52	23	1 49	38	2 46	53	3 43
9	0 58	24	1 55	39	2 53	54	3 50
10	0 65	25	1 62	40	2 59	55	3 56
11	0 71	26	1 68	41	2 65	56	3 62
12	0 78	27	1 75	42	2 72	57	3 69
13	0 84	28	1 81	43	2 78	58	3 75
14	0 91	29	1 88	44	2 85	59	3 82
15	0 97	30	1 94	45	2 91	60	3 88
DRACHMS	GRAMS	DRACHMS	GRAMS	DRACHMS	GRAMS	DRACHMS	GRAMS
1	3 88	3	11 65	5	19 44	7	27 17
2	7 76	4	15 50	6	23 36	8	31 04

APOTHECARIES' AND METRIC MEASURES OF CAPACITY

MINIMS	ML.	MINIMS	ML.	MINIMS	ML.	MINIMS	ML.	MINIMS	ML.
1	0 06	13	0 80	25	1 54	37	2 28	49	3 02
2	0 12	14	0 86	26	1 60	38	2 34	50	3 08
3	0 18	15	0 92	27	1 66	39	2 40	51	3 14
4	0 25	16	0 99	28	1 73	40	2 46	52	3 20
5	0 31	17	1 05	29	1 79	41	2 53	53	3 27
6	0 37	18	1 11	30	1 85	42	2 59	54	3 33
7	0 43	19	1 17	31	1 91	43	2 65	55	3 39
8	0 49	20	1 23	32	1 97	44	2 71	56	3 45
9	0 55	21	1 29	33	2 03	45	2 77	57	3 51
10	0 61	22	1 36	34	2 09	46	2 83	58	3 5
11	0 67	23	1 42	35	2 16	47	2 90	59	2 63
12	0 74	24	1 48	36	2 22	48	2 96	60	3 70

1 teaspoon (tsp.) = 4 5 ml.
1 tablespoon (tbsp.) = 15 ml.
1 pint (pt.) = 473 ml.
1 quart (qt) = 0.9463 liter (L.) (1,000 ml)
1 gallon (gal.) = 3.78 L.

MEASURES OF LENGTH

FT	IN	CM	FT	IN	CM	FT	IN	CM
	¼	0 64	2	7	78 74	5	4	162 56
	½	1 27	2	8	81 28	5	5	165 10
	¾	1 91	2	9	83 82	5	6	167 64
	1	2.54	2	10	86 36	5	7	170 18
	2	5 08	2	11	88 90	5	8	172 72
	3	7 62	3	0	91 44	5	9	175 26
	4	10 16	3	1	93 98	5	10	177 80
	5	12 70	3	2	96 52	5	11	180 34
	6	15 24	3	3	99 06	6	0	182 88
	7	17 78	3	4	101 60	6	1	185 42
	8	20 32	3	5	104 14	6	2	187 96
	9	22 86	3	6	106 68	6	3	190 50
	10	25 40	3	7	109 22	6	4	193 04
	11	27 94	3	8	111 76	6	5	195 58
	12	30 48	3	9	114 30	6	6	198 12
1	1	33 02	3	10	116 84	6	7	200 66
1	2	35 56	3	11	119 38	6	8	203 20
1	3	38 10	4	0	121 92	6	9	205 74
1	4	40 64	4	1	124 46	6	10	208 28
1	5	43 18	4	2	127 00	6	11	210 82
1	6	45 72	4	3	129 54	7	0	213 36
1		48 26	4	4	132 08	7	1	215 90
1	8	50 80	4	5	134 62	7	2	218 44
1	9	53 34	4	6	137 16	7	3	220 98
1	10	55 88	4	7	139 70	7	4	223 52
1	11	58 42	4	8	142 24	7	5	226 06
2	0	60 96	4	9	144 78	7	6	228 60
2	1	63 50	4	10	147 30	7	7	231 14
2	2	66 04	4	11	149 86	7	8	233 68
2	3	68 58	5	0	152 40	7	9	236 22
2	4	71 12	5	1	154 94	7	10	238 76
2	5	73 66	5	2	157 48	7	11	241 30
2	6	76 20	5	3	160 02	8	0	243 84

MEASURES OF LENGTH—(*Continued*)

1 ft. = 0.3048 meter (m.)
10 ft. = 3.048 meters
1,000 ft. = 304.8 meters [or] 0.3 kilometer (km.)
1 mile = 1.6093 km.

MEASURES OF AREA

1 sq. in. = 6.4516 sq. cm.
1 sq. ft. = 0.0929 sq. m.
1 sq. yd. = 0.8361 sq. m.

MEASURES OF VOLUME

1 cu. in. = 16.387 cu. cm.
1 cu. ft. = 0.0283 cu. m.
1 cu. yd. = 0.7646 cu. m.

MEASURES OF CAPACITY

Fluidrachms	Ml.	Liters	Fluidounces	Ml.	Liters
1	3 7	0 004	1	29 57	0 03
2	7 39	0 007	2	59 15	0 06
3	11 09	0 011	3	88 72	0 09
4	14 79	0 015	4	118 29	0 12
5	18 48	0 018	5	147 87	0 15
6	22 18	0 022	6	177 44	0 18
7	25 88	0 026	7	207 02	0 21
8	29 57	0 030	8	236 59	0 24
			9	266 16	0 27
			10	295 73	0 30
			11	325 31	0 33
			12	354 88	0 35
			13	384 46	0 38
			14	414 03	0 41
			15	443 61	0 44
			16	473 18	0 47
			17	502 75	0 50
			18	532 33	0 53
			19	561 90	0 56
			20	591 47	0 59

ENUMERATIONS

In enumerations, periods follow arabic numerals which designate complete sentences, items in lists separated by periods and tabulated items. Parentheses are used around arabic numerals which designate clauses or listed items separated by commas or semicolons. An example of enumeration of complete sentences is given in the chapter entitled "The Subject and the Material in the section on conclusions Examples of other types of enumeration follow

The cases were grouped according to the result of treatment as follows

1 Cases in which the result of treatment was favorable tension normal visual acuity 1/2 or more.

2 Cases in which the result of treatment was less favorable tension normal visual acuity from 1/60 to 1/3

3 Cases in which the result of treatment was unfavorable tension raised or visual acuity less than 1/60 or eye removed

There are three essential factors in the development of experimental cholesterol arteriosclerosis (1) cholesterol in the diet, (2) hypercholesteremia and (3) injury to the intima of the arteries.

10

Pharmaceutic Products and Prescriptions

In medical writing—particularly that dealing with the treatment of disease—medicaments are mentioned frequently. Established products should be designated by the official English names given in the "Pharmacopeia of the United States. A convenient volume, "Epitome of the Pharmacopeia of the United States and the National Formulary," is issued by the Council on Pharmacy and Chemistry of the American Medical Association. Each year the Council on Pharmacy and Chemistry publishes a book, New and Nonofficial Drugs, in which are listed and described the new preparations. The most accurate descriptive name available for a drug should be employed, and the exact chemical composition should be included. In the spelling of chemical terms it is well to follow the rules adopted by the American Chemical Society.

TRADE-MARKED DRUGS

The names of trade-marked drugs are usually capitalized or given in quotation marks. They may be quoted *in toto* the first time they are used—e.g., "Paredrine hydrobromide ophthalmic," "Paredrine hydrobromide aqueous" after that, shortened forms such as "ophthalmic Paredrine" and "aqueous Paredrine" are used. When the initial capital is reserved for official preparations, the quotation marks are used to identify trade-marked products. Many publications now put a superior designation ® after the registered trade mark name of any preparation.

ENDOCRINE AND PHARMACEUTIC NOMENCLATURE

Progress in the use of endocrine preparations and of anti-infective agents has been so rapid that there is much confusion in the minds of

MEASURES OF CAPACITY

Fluidrachms	ML	Liters	Fluidounces	ML	Liters
1	3 7	0 004	1	29 57	0 03
2	7 39	0 007	2	59 15	0 06
3	11 09	0 011	3	88 72	0 09
4	14 79	0 015	4	118 29	0 12
5	18 48	0 018	5	147 87	0 15
6	22 18	0 022	6	177 44	0 18
7	25 88	0 026	7	207 02	0 21
8	29 57	0 030	8	236 59	0 24
			9	266 16	0 27
			10	295 73	0 30
			11	325 31	0 33
			12	354 88	0 35
			13	384 46	0 38
			14	414 03	0 41
			15	443 61	0 44
			16	473 18	0 47
			17	502 75	0 50
			18	532 33	0 53
			19	561 90	0 56
			20	591 47	0 59

ENUMERATIONS

In enumerations, periods follow arabic numerals which designate complete sentences, *items in lists separated by periods* and tabulated items Parentheses are used around arabic numerals which designate clauses or listed items separated by commas or semicolons. An example of enumeration of complete sentences is given in the chapter entitled "The Subject and the Material in the section on conclusions. Examples of other types of enumeration follow

The cases were grouped according to the result of treatment as follows.

1 Cases in which the result of treatment was favorable tension normal, visual acuity 1/2 or more.

2. Cases in which the result of treatment was less favorable tension normal visual acuity from 1/60 to 1/3

3 Cases in which the result of treatment was unfavorable tension raised or visual acuity less than 1/60 or eye removed.

There are three essential factors in the development of experimental cholesterol arteriosclerosis (1) cholesterol in the diet, (2) hypercholesteremia and (3) injury to the intima of the arteries.

	Gm. or Cc.		
Magnesium oxide	10		ʒ iiss
Bismuth subcarbonate	20	or	ʒ v
Syrup of acacia, water each in sufficient quantity			
	To make 200		℥ vii

Directions: Take 1 tablespoon as required after meals, plain or in water

The same prescription in Latin would be:

	Gm. or Cc.		
℞ Magnesii oxidi	10		ʒ iiss
Bismuthi subcarbonatis	20		ʒ v
Syrupi acaciae	q.s.	or	
Aquae destillatae	q.s.		
	Ad 200		f℥ vii

M. Sig. Take 1 tablespoon as required after meals, plain or in water

In Latin prescriptions, certain words may be abbreviated

caps. (capsula)	garg. (gargarisma)	pulv. (pulvis)
cerat. (ceratum)	gland. (glandula)	spt. (spiritus)
comp. (compositus)	glyc. (glyceritum)	suppos. (suppositorium)
conf. (confectio)	inf. (infusum)	syr. (syrupus)
cort. (cortex)	lin. (linimentum)	tr. tinct. (tinctura)
decoc. (decoctum)	liq. (liquor)	trit. (tritura)
elix. (elixir)	mist. (mistura)	troch. (trochiscus)
emp. (emplastrum)	ol. (oleum)	ung. (unguentum)
enem. (enema)	pil. (pilula)	vin. (vinum)
fldxt. (fluidextractum)		

It is well to avoid abbreviating the names of the drugs themselves. Some abbreviations may be read in various ways if not made clear by the context: for example, "chlor.," which may be read "chloralum," "chloridum" or "chloras"; "sulf.," which may be read "sulfur," "sulfidum" or "sulfas"; and "ext. col.," which may be read "extractum colchici" or "extractum colocynthidis."

Most publications are now aiding the campaign in behalf of metric measurements and urge their use in prescriptions. Metric measurements alone are used whenever possible, or the metric values are given first, followed by the apothecaries' equivalents. If the apothecaries' units must for any reason be given first, metric equivalents are always

physicians concerning the use of these preparations, their sources and potencies and their identities Unless correct nomenclature is used in medical writing and speaking, confusion will continue to exist.

Because the word "hormone" is all too often applied erroneously, it probably is best to avoid this term and use "endocrine substance or principle" or "factor" It also is best to make reference whenever possible to the standardization of these preparations in terms of weight of the active components and not to units.

Other terms widely misapplied are 'female sex hormone," male sex hormone and "corpus luteum hormone." They should be referred to as 'estrogen,' 'androgen and progestin, and further defined according to their exact nature. Likewise, 'thyroid extract is commonly misused when the writer actually means desiccated thyroid. This is not an extract but simply the dried gland

When sulfanilamide, sulfapyridine and sulfathiazole were introduced as therapeutic agents, the term sulfa drugs was born. There are few more meaningless words than 'sulfa' it has no scientific standing and should never be used even in a popular sense When a writer wishes to use a broadly descriptive word reference should be made to sulfonamide, a term that has meaning and is recognized as being reserved for this new class of chemotherapeutic agents.

Another word that has assumed almost household familiarity is 'antibiotic. It is now reserved by the majority of physicians for extracts from substances such as molds, fungi and bacteria, and is applied to drugs such as penicillin, streptomycin and tyrothricin. These three drugs have markedly different properties, and describing any one of them simply as an antibiotic would not provide any worthwhile information There may even be reason to specify the type of penicillin under discussion.

PRESCRIPTIONS

That prescriptions may appear properly in an article, they should be uniform in style and either wholly in Latin or wholly in English. The use of English is preferable. Many newer products do not have latinized endings. An example of a prescription in English is

11

Bibliographic Material

SECURING A BIBLIOGRAPHY

In investigating the literature on a subject, begin preferably with the most accessible indexes. *The Journal of the American Medical Association* publishes at the end of each volume an index of the original articles appearing in its pages and of articles in other periodicals that have been abstracted in *The Journal* during the previous six months. Many of the articles there mentioned will contain references to other articles, these in turn mentioning still others. Thus, more and more references are accumulated, until perhaps one finds an article by a reliable writer who has summarized the literature to the date of his publication.

The Quarterly Cumulative Index Medicus. If a more complete study of a subject is contemplated, the *Quarterly Cumulative Index Medicus*, published by the American Medical Association, should be consulted. This is a consolidation of the *Index Medicus*, established in 1879 by J S Billings and Robert Fletcher and the *Quarterly Cumulative Index* launched in 1916 by the American Medical Association. In 1927 the two publications merged under the title *Quarterly Cumulative Index Medicus* From 1927 to 1931 inclusive, the index was published jointly by the American Medical Association and the Army Medical Library Since 1932 it has been supported and published entirely by the American Medical Association. In it, all authors are listed alphabetically with sufficient cross-indexing to make the finding of references simple. The *Quarterly Cumulative Index Medicus* includes a list of the medical periodicals indexed, with full information concerning them, as well as a list of new medical books and a list of publishers.

This index was at first published four times a year the first and third numbers being temporary (bound in paper) and each covering periodicals received during a three month period the second and fourth numbers (bound in cloth) covered periodicals received during a half-year Each number was published as soon as possible after the

inserted after them. It is particularly bad form to mix two systems of measurements, as "Dissolve 10 Gm. of —— in 2 fluidounces of water," or "100 cc. contains 30 grains of ——." (In certain areas such as pharmacy, "milliliters" is now often preferred to "cubic centimeters.")

To avoid confusion, "grams" is abbreviated "Gm.," with a capital "G"; "grains" is written in full except when lack of space necessitates abbreviation, in which case "gr.," with a lower case "g," is used.

11

Bibliographic Material

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The Quarterly Cumulative Index Medicus. If a more complete study of a subject is contemplated, the *Quarterly Cumulative Index Medicus* published by the American Medical Association, should be consulted. This is a consolidation of the *Index Medicus* established in 1879 by J S Billings and Robert Fletcher and the *Quarterly Cumulative Index*, launched in 1916 by the American Medical Association. In 1927 the two publications merged under the title *Quarterly Cumulative Index Medicus*. From 1927 to 1931 inclusive, the index was published jointly by the American Medical Association and the Army Medical Library Since 1932 it has been supported and published entirely by the American Medical Association. In it, all authors are listed alphabetically with sufficient cross-indexing to make the finding of references simple. The *Quarterly Cumulative Index Medicus* includes a list of the medical periodicals indexed, with full information concerning them, as well as a list of new medical books and a list of publishers.

This index was at first published four times a year the first and third numbers being temporary (bound in paper) and each covering periodicals received during a three month period, the second and fourth numbers (bound in cloth) covered periodicals received during a half-year Each number was published as soon as possible after the

inserted after them. It is particularly bad form to mix two systems of measurements, as "Dissolve 10 Gm. of ——— in 2 fluidounces of water," or "100 cc. contains 30 grains of———" (In certain areas such as pharmacy, "milliliters" is now often preferred to "cubic centimeters.")

To avoid confusion, "grams" is abbreviated "Gm.," with a capital "G"; grains is written in full except when lack of space necessitates abbreviation, in which case "gr." with a lower case "g" is used.

In 1956 Congress passed a bill transferring the Armed Forces Medical Library to the National Library of Medicine.

How to Secure the Complete Literature. If the complete literature on a subject is desired, one will do well to begin with the available volumes of the *Index-Catalogue of the Library of the Surgeon General's Office*. Having secured the references listed therein, one may then consult the volumes of the *Index Medicus* and the *Quarterly Cumulative Index* as far as they go, and the index to the bound volumes of the *Journal of the American Medical Association* up to 1916. The references may then be brought up to recent date with the aid of the *Quarterly Cumulative Index Medicus* and the *Current Medical List*.

Seldom is it desirable to review the complete literature on a subject in an article for publication in a periodical. The science of medicine has grown so vastly and its book and periodical literature is so extensive that complete reviews repeat themselves endlessly in the literature. It is no longer excusable to bolster a report of a case or an article with a compilation of references to all similar cases that have been reported in the literature. The growth of medical literature has made this not only a useless but also an unwarranted task. Reference should be given only to articles that illuminate the subject. Hardly any one detail of a well prepared and well written article will give a better and clearer idea of a writer's methods or foster greater confidence in the accuracy and soundness of his views than well chosen, well arranged, absolutely correct references. References should be given only to articles that have been directly utilized by the author presenting them. To republish long bibliographies taken from other authors is a form of plagiarism which unnecessarily burdens the literature.

SECURING MEDICAL PERIODICALS

A physician who has access to a good medical library probably will be able to find bound volumes of the most important medical periodicals. If he wants to consult the more recent literature, he may order periodicals published in the United States directly from the publishers, or he may borrow them. *The Journal of the American Medical Association* will lend to its subscribers and members, on request accompanied by 15 cents in postage, any periodical received in the

completion of the period covered but publication was suspended temporarily with the Jan–June 1954 volume.

The Current List of Medical Literature The original *Current List of Medical Literature* was founded in 1941 by Dr Atherton Seidell as a venture of the Friends of the Army Medical Library In 1945 the *Current List of Medical Literature* became an official government publication of the Army Medical Library In July 1950 the first issue of the completely refurbished monthly *Current List of Medical Literature* appeared. Many changes have been made in the intervening years, however, the dual arrangement consisting of a Register of Articles and a separate index referring to the Register has remained the same.

The *Current List of Medical Literature* appears monthly from January through May and from July through November with its Register of Articles, Subject Index and Author Index. The issues for June and December are the semiannual cumulations of the index sections for the preceding five months.

The *Current List of Medical Literature* in 1954 covered approximately 1400 journals with separate entries for some reports of government projects In 1953 the *Current List* indexed almost 105 000 articles and during the first half of 1954 almost 58 000 articles. The average number of Subject Index entries for each article is about 2.5 the average number of Author Index entries is 1 5 The *Current List* goes to most of the medical libraries in the United States

The Index-Catalogue of the Library of the Surgeon General's Office The Armed Forces Medical Library formerly the Library of the Surgeon General's Office, contains the greatest collection of medical periodicals, pamphlets and books in any medical library in America. In 1876 John Shaw Billings published a specimen sheet of a combined index-catalogue, with authors and subjects arranged in alphabetical order Established by act of the Congress of the United States in 1879 the first volume of the *Index-Catalogue of the Library of the Surgeon General's Office* was issued in 1880 This work has now been discontinued but in 1955 it had reached its fifty third volume and its fourth alphabetical set, covering the entire material in the Armed Forces Medical Library as of 1955 There is in the library an index on file cards which is kept up to date.

PATHOGENESIS OF NONCASEATING TUBERCULOSIS
OF THE SKIN AND LYMPH NODES

RALPH R. MELLON, M.D.

AND

LAWRENCE G. BEINHAUER, M.D.

PITTSBURGH

From the Institute of Pathology (Dr Mellon) and the Department of Dermatology (Dr Beinhauer) of the Western Pennsylvania Hospital.

An author's affiliation may be included after his name on the title page, as in the following examples

LAUREN V ACKERMAN, M D

Assistant Professor of Pathology Washington University School of Medicine

ST LOUIS

MORRIS MOORE, M.D.

Mycologist to the Barnard Free Skin and Cancer Hospital

ST LOUIS

References to the literature and comments on various matters mentioned in an article that are to be used as footnotes should be numbered consecutively throughout the article, with corresponding superior reference figures in the text. When the same reference is used twice instead of duplicating the note or using the words "loc. cit." it is better to repeat in the text the number of the original note. In the publications of the American Medical Association Press, multiple superior figures are not used. When an author wishes to refer to several articles at one point, he should combine them in one footnote (as in examples 20 and 25 in the list at the end of this chapter—see pages 127 128) or mention the authors names individually in the text, with one superior figure for each. If several references combined in one footnote are referred to individually later they may be numbered a, b etc (examples 26 and 27 of the list—see page 128)

library of the American Medical Association, with the exception of its own publications On making proper deposit, a physician may also arrange to borrow publications from the Armed Forces Medical Library Washington, D C. (soon to be replaced by the National Library of Medicine)

ARRANGEMENT AND FORM OF BIBLIOGRAPHIC REFERENCES

Footnotes. Footnotes which refer to the article as a whole are placed on the title page. An asterisk or a dagger is used only when it is necessary definitely to connect the footnote with one author or with a specific part of the title Ordinarily an asterisk is used for the first footnote that requires a special designation and a dagger for the second A dagger is always used however, for a footnote recording the death of an author Such a footnote should read Dr Brown died on March 10, 1948 " When a paper has been read at a meeting of a society a footnote to that effect should be given.

Examples of footnotes on a title page follow

VITAMIN C AND PIGMENT

THEODORE BROOKS M.D

CHICAGO

From the Department of Dermatology College of Medicine, University of Illinois, Service of Dr F E. Sampson

Read before the Section on Dermatology and Syphilology at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City Mo. May 14 1936

ANATOMIC FEATURES OF THE CARDIAC ORIFICE *OF THE STOMACH*

WITH SPECIAL REFERENCE TO CARDIOSPASM

FREDERICK C. LENDRUM, M.D., Ph.D *

DETROIT

* Former Fellow in Medicine, the Mayo Foundation.

Abridgment of a thesis submitted to the faculty of the Graduate School of the *University of Minnesota in partial fulfilment* of the requirements for the degree of Doctor of Philosophy in Medicine.

(It cannot safely be numbered consecutively with the footnotes in the text because until the printed pages are made up it is difficult to determine where an illustration will be inserted.) When one reference is mentioned in several legends but not in the text, it may be possible to include a sentence concerning it in the text and to insert a footnote a superior figure may then be used each time the reference is cited.

The following examples of legends are in the proper form

A. Fig. 1 *A* is a demonstration of suture method 4 the Halsted precection suture technic used only on the anterior aspect of the ostium. *B* is a demonstration of suture method 5, the ordinary continuous circular through and through suture which when used anteriorly inevitably causes macroscopic mucosal eversion, as shown at (Martzloff and Suckow[1])

B. Fig. 10 In the middle of the figure is a myelophage (*M*), which is a large vacuolated body the processes (*P*) of which emanate from the nucleus (*N*) an oligodendrocyte forming a ring around the enclosures of myelin (two dark fragments). This section (Hassin, George B Histopathologic findings in a case of superior and inferior polioencephalitis, *Arch. Neurol. & Psychiat.* 5:55 [Jan] 1921) is from the brain of a patient with so-called superior and inferior polioencephalitis. Bielschowsky's stain, × 1,200.

C. Fig. 1 *A*, *B* and *C*, dorsal views of brains of rabbits showing areas of cortex removed in three experiments. *D*, dorsal view of the brain of a rabbit, in which the area outlined by a broken line represents the precentral motor area as shown by C. Winkler and A. Potter (An Anatomical Guide to Experimental Researches on the Rabbit's Brain, Amsterdam, W. Versluys, 1911). The numbers on the opposite hemisphere indicate points stimulated to obtain movements of (1) the face and jaws, (2) the head and neck and (3) the scapula.

When material is reproduced from another source, permission for reproduction should be secured from the author and the publisher for the better periodicals and books are copyrighted.

References in Tables. Frequently bibliographic references for authors are listed in a table. Such references cannot be assigned numbers consecutive with those in the text, as it is impossible to tell where a table will be inserted on the printed page. The plan that has been followed in the publications of the American Medical Association Press is to use in tables the superior figures employed in the text for references there cited and to include in the table itself the references not cited in the text, as shown in Table 3 page 124

This plan may result in a slight inconsistency of form. The alternative however—that of including all the references in the table when

When it is necessary to delete a footnote after the type is set, the superior figure—say 6—in the text should be deleted, so that the reader will not look to the foot of the page needlessly, and "6 Footnote deleted on proof" should be substituted for the discarded reference. Conversely, if an author finds it necessary to insert a footnote after the type is set—say between 10 and 11—the reference may be numbered "10a" so that the numbers of the following footnotes need not be changed.

A note appended to an article after the type is set, unless it is a mere footnote, is considered to be a part of the text matter and is set in body type. If it contains bibliographic references, they should be treated as footnotes, numbered consecutively following the last footnote in the text.

Although in the printed article footnotes appear at the bottom of the page on which they are mentioned in the text, in the preparation of the manuscript they should be typed, in double space, on a separate page following the text matter.

Bibliographies. References are grouped at the end of a paper in the form of a bibliography only when an exhaustive review of the literature has been made on a subject of sufficient importance to warrant such a survey. The references constituting a bibliography may be arranged either alphabetically or chronologically or in exceptional instances according to some other logical scheme. The alphabetical arrangement is usually preferable, for it makes it easy for the reader to locate an author's name quickly.

References in Society Proceedings, Discussions and Legends for Illustrations. Footnotes are not used in discussions of original articles or in society proceedings. References should be incorporated in the text, in parentheses. The form used is the same as that for references used as footnotes except that the names of periodicals are italicized.

When a reference mentioned in a legend is cited in the text also the superior figure designating the footnote to the text may be used in the legend instead of repeating the reference (example A, following). When a reference given in a legend is not cited in the text it should be incorporated in the legend (examples B and C, following).

4. Place of publication.
5. Name of the publisher
6. Year of publication
7. Volume if more than one has been published.
8. Page.

A complete reference to an article in a periodical contains (examples 2 to 4 in the list —see page 127)

1. Author's surname and initials.
2. Title of the article (capitalize only initial word and proper nouns in English).
3. Name of the periodical, abbreviated according to the form given in the *Quarterly Cumulative Index Medicus* or written correctly in full (an abbreviation devised by an individual author is likely to lead to confusion).
4. Volume
5. Page.
6. Month—and day of the month if the periodical is published more often than once a month.
7. Year

The year and the volume number may serve as a check on each other The page number permits quick reference when the volume is at hand. The date is important, especially if the reference is to a recent periodical, which is likely not to be bound. It is useful also if one desires to purchase a number of the periodical, for a publisher prefers to have the exact date of issue rather than the volume and the page. Some periodicals—for instance, the *British Medical Journal* and the *Lancet*—do not use volume numbers except 1 and 2 for each year

In references to bulletins published by the various departments of the United States government, the following information should be included, in this order (examples 39 and 40 in the list—see page 129)

1. Name of the author
2. Title of the bulletin.
3. Number of the bulletin.
4. Name of the department.
5. Name of the bureau.
6. Date

References to these and to other bulletins, monographs and reports should be treated as are references to books, without undue use of abbreviations. The exact title should always be given, and the

only some of them are cited in the text—has the disadvantage of failing to indicate to the reader that certain references are mentioned in the text as well as in the table and of making the table occupy more space

TABLE 3.—*Normal Range of Venous Pressure in Adults*

Observer	Method	Range, Mm. Water
Owens, L. B. J Lab. & Clin. Med. 18:266 1932	Indirect	35–90
Eyster J E. A., and Middleton, W S. Arch. Int. Med. 34:228 (Aug) 1924	Indirect	50–60
Runge, H. Arch. f. Gynäk. 22:142, 1924	Indirect	48–66
Moritz and von Tabora[4]	Direct	40–80
Berghausen O J Med. 15:22, 1934	Direct	40–80
Caughey[1b]	Direct	40–80

References to periodicals in tables should include the name of the author, his initials, the name of the periodical and the volume, page and year The title should not be included unless there is special reason References to books should be in the usual complete form.

The method of inserting in tables footnotes other than bibliographic references will be discussed in the chapter on tables and charts (see page 166)

Form for References. An incorrect reference may cause the reader to waste much time in looking for an article It leads, moreover to the assumption that the author did not actually consult the work but copied the reference. The author should ensure accuracy by seeing each article himself and verifying the data Special attention should be given to the spelling of foreign names and of words in foreign titles. Accents should be included as they appear in the names and titles cited. An English title should be quoted exactly unless there is an error that is obviously typographic. The accuracy of a reference is further substantiated by making it complete

A complete reference to a book contains the following information (example 5 in the list—see page 127)

1. Author s surname and initials.
2. Title of the book (capitalize all main words)
3. Edition.

SAMPLE FOOTNOTES

Francis, T., Jr.. Transmission of influenza by filtrable virus, Science 80:457 (Nov. 16) 1934.

Horn, L., and Stengel, E. Zur Klinik und Pathologie der Pickschen Atrophie Ueber die nosologische Stellung der "Pickschen Krankheit," Ztschr. ges. Neurol. u. Psychiat. 128:673–701 1930.

Domenech-Alsina, F., Benaiges, B., and Arqué, P.. Etude du choc provoqué par l'irrigation péritonéale hypertonique, Compt. rend. Soc. de biol. 114:104 1933

Robinson, Will, and Parsons, Eloise: Hemorrhage and "shock" in traumatized limbs, A.M.A. Arch. Path. 12:869 (Dec.) 1931

Osler W.. Modern Medicine, ed. 3, Philadelphia, Lea & Febiger 1927 vol. 5, p. 66.

Woodward, J.. Medical History of the War of the Rebellion, Washington, D.C., Government Printing Office, 1879 pt. 2, p. 869

Rixford, E. Surgery of the Lymphatic System, in Nelson Loose Leaf Living Surgery New York, Thomas Nelson & Sons, 1927 vol. 4, p. 101

Minot, G. R. Treatment of Anemia, in Christian, H. A., and Mackenzie, J.. Oxford Medicine, New York, Oxford University Press, 1928, vol. ., pt. 2, p. 649

Jutmsberg, F., in Jadassohn, J Handbuch der Haut und Geschlechtskrankheiten, Berlin, Julius Springer 1931 vol. 7 pt. 2, p. 131

[20] Footnote deleted in proof.

[21] Soctarus, cited by Story W. H. The Evil Eye, London, Chapman & Hall, Ltd., 1887 p. 161

[22] Gonnard, cited by Benhamou and Gonnard.

[23] Carter cited in Nelson Loose-Leaf Living Medicine, New York, Thomas Nelson & Sons, 1926.

Sherwood, M. W. Suppurative pericarditis, with report of a case, M. Rec. & Ann. 20:5. 1926 cited by White, R. J

Giorgi, E Epidemic scurvy Pediatria 29:66 (Jan. 15) 1921 abstracted, J.A.M.A. 76 689 (Mar 5) 1921

[24] Sutherland, C. G., in discussion on Weir J. F., and Snell, A. M. Symptoms that persist after cholecystectomy J.A.M.A. 105:1093 (Oct. 5) 1935.

[25] Alexander E. G. Personal communication to the author

[26] Barber R. F Unpublished data.

[27] Using the Aub-Du Bois standard as a basis for their calculations, J. J. Short and H. J. Johnson (The increased metabolism of obesity: Use and abuse of metabolic stimulants, J.A.M.A. 106:1776 [May 23] 1936) concluded that "the total metabolism increases directly with the excess of weight."

[28] Evans, H. M., Meyer Karl, Simpson, M. E., and Reichert, F. L. Disturbance of carbohydrate metabolism in normal dogs injected with the hypophyseal growth hormone, Proc. Soc. Exper. Biol. & Med. 29:857 (Apr.) 1932. Houssay B. A., and

serial number, the name of the series of bulletins or monographs (written correctly in full), the publisher and the date should be included (examples 41 to 43 in the list—see page 129)

A few general principles in regard to form may be mentioned [1]

1 Titles of articles and of books are not abbreviated.

2. If possible titles should be given in the language in which they originally appeared If for some reason an author wishes to translate the titles into English, however the translations should be accurate and all the foreign titles should be translated.

3 Neither italics nor quotation marks are used to distinguish titles of books, articles or periodicals in footnotes, legends or bibliographies.

4 The names of all the authors should be given unless there are more than four or unless the names cannot be obtained (example 22 in the list—see *page 128*)

5 The number of a periodical usually is not included when the volume number is available.

6. Words of reference should precede their numerals. Thus. ed 2," "no. 8, "series 13"—not "2d ed.," 8th no.," 13th series."

7 Foreign words of reference, such as *tome* (volume) *fascicule* (part) *Seite* (page) *Teil* (part) *Auflage* (edition) *Abteilung* (section or part) *Band* (volume) *Heft* (number) *Beiheft* (supplement) and *Lieferung* (part or number) should be translated

8 References to abstracts of articles should be included only (1) when the author wishes to show that he has consulted an abstract rather than the original article or (2) when the original article appeared in a journal that is not readily accessible to the majority of physicians. In these instances complete data for the original article should be included as well as the reference for the abstract.

9 It usually is sufficient to give the number of the first page of the material cited If, however an author wishes to give both the first and the last page (as in example 2 of the list—see page 127) he should use this form for all the references in his article. Occasionally an author wants to give not the page on which the article begins but the specific page on which the material cited appears. If the policy is followed, a note to that effect should be included, for the reader normally expects the page cited to be the first one of the article

In the following list are given examples of the forms used for references of various types in footnotes and bibliographies in the publications of the American Medical Association Press.

[1] The methods indicated are those followed by the periodicals published by the American Medical Association. Other periodicals have individual styles, which vary somewhat from those listed. A contributor should acquaint himself with the form used by the periodical to which his paper is to be submitted.

Milhorat, A. T., and Wolff, H. G. Studies in muscle disease. I. The metabolism of creatine and creatinine in progressive muscular dystrophy. Arch. Neurol. & Psychiat., to be published.

Richards, A. N. Processes of Urine Formation in the Amphibian Kidney. In Harvey Lectures, 1934–1935. Baltimore, The Williams & Wilkins Company, 1936.

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Jones, E. T. Growth and Development. In Annual Report, United States Department of Agriculture. Bureau of Animal Industry. 1911. p. 157.

Siedwell, J., and Francis, E. Studies in Pellagra. Hygienic Laboratory Bulletin 106, United States Public Health Service. 1917.

Coblentz, W. W., and Emerson, W. B. Glasses for Protecting Eyes from Invisible Radiations. Technologic Paper 93, United States Department of Commerce. Bureau of Standards. 1917.

Benedict, F. G., and Talbot, F. B. The Gaseous Metabolism of Infants, with Special Reference to Its Relation to Pulse-Rate and Muscular Activity. Publication 201. Carnegie Institution of Washington, 1914.

Pearce, Louise. The Treatment of Human Trypanosomiasis with Tryparsamide. Monograph 23, Rockefeller Institute for Medical Research, 1930.

Mackay, H. M. M. Nutritional Anaemia in Infancy with Special Reference to Iron Deficiency. Medical Research Council, Special Report Series, no. 157. London, His Majesty's Stationery Office, 1931.

Wound Shock and Haemorrhage. Medical Research Committee. Special Report Series, no. 25. London, His Majesty's Stationery Office. 1919.

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Barney, J. D., and Mintz, E. R. Some newer conceptions of urinary stone formation. J.A.M.A. 103:741 (Sept. 8) 1934.

——— and Miner, W. J. Renal tuberculosis complicated by inguinal fistula, transverse myelitis and renal calculus. J. Urol. 4:391 (Aug.) 1920.

Eisenstaedt, C., and Neumann, F. Nephrogenous scoliosis. Beitr. klin. Chir. 149:508 (June 14) 1930.

Cummins, R. E. Shell fracture of the spine and changes in the kidney and bladder function. J.A.M.A. 81:335 (Feb. 4) 1922.

——— Structural and functional changes in the urinary tract following focal cord lesions. Ibid. 99:2009 (Dec. 10) 193—.

Goodhart, J. F. Acute and Chronic Bright's Disease. In Keating, J. M. Cyclopedia of Diseases of Children, Philadelphia, J. B. Lippincott Company. 1890. vol. 3. p. 53—.

Miles, L. M., and Feng, C. T. Calcium and phosphorus metabolism in osteomalacia. J. Exper. Med. 41:137 (Jan.) 1925.

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—

Blasott, A. Carbohydrate metabolism and diabetes, Endocrinology 15:511 (Nov-Dec.) 1931

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[24] Wile, U J Visceral syphilis Syphilis of the stomach, Arch. Dermat. & Syph. 1:543 (May) 1920 Grund J L. Efficacy of bismarsen in Wassermann-fast syphilis, ibid 26:1074 (Dec.) 1932.

[25] David V C Surgery of the Rectum and Anus, in Lewis, Dean Practice of Surgery Hagerstown Md W F Prior Company Inc., 1930 vol. 7 chap. 6, p. 11 Jones, D F and McClure, W L. Peritoneum, ibid. vol. 7 chap. 8, p. 23.

[26] (*a*) Birch, T W., and Dann W J Estimation and distribution of ascorbic acid (vitamin C) and glutathione in animal tissues, Nature, London 131 469 (Apr 1) 1933 (*b*) Von Euler H. and Malmberg M Ueber die antiskorbutische Wirkung der Augenlinsen and über Ihren Gehalt an Reduktonen und Sulfhydrylen, Ztschr physiol Chem 230:225 1934

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[34] Veil P Les tumeurs noeviques des paupieres et de la conjonctive (contribution à l'étude anatomopathologique et clinique des tumeurs du limbe sclérocornéen), Thesis, Paris, no. 206, Paris, A. Legrand, 1925

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[illegible] Richards, A. N Processes of Urine Formation in the Amphibian Kidney In Harvey Lectures, 1934–1935, Baltimore, The Williams & Wilkins Company 1936.

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Pemberton, R. Arthritis and Rheumatoid Conditions Their Nature and Treatment, Philadelphia, Lea & Febiger 1929 chap. 2.

Preparation of the Manuscript

The general appearance of a manuscript has a psychologic effect on an editor. A manuscript carelessly arranged, without pagination, composed of sheets of various sizes, with additions written on slips pinned or clipped to the pages or with corrections made without regard to neatness or to clarity may prejudice the reader who is to pass on its merits. Slovenly preparation has caused the return of numerous manuscripts which otherwise might have been accepted.

Authors may well devote some time to learning the rudiments of printing. Such knowledge helps in the preparation of the manuscript and saves many needless corrections. Authors, however, are not expected to specify the type to be used any more than patients are expected to specify the diagnostic tests to be undertaken.

Paper. The paper used should be of standard size (8½ by 11 inches), nontransparent and of good quality so that it will withstand handling.

Original and Carbon Copies. The original copy of a paper should be submitted if at all possible. If not, a first carbon copy on good paper may be acceptable. Editors need good, clean copy for practical reasons. Each manuscript is read by at least one editor and then, in turn, by the copy editor, the typesetter and the proofreader or the copyholder. With the exception of the editor, each of these must check spelling, punctuation, capitalization and grammatical construction.

Some publications, the *A.M.A. Archives of Dermatology* among them, ask for both the original and a carbon copy. The latter is used for corrections and queries to the author; final changes are correlated in the editorial office and then indicated on the original, with typographic instructions, so that the typesetter can work from a clear copy.

The wise author will always retain a carbon copy, both for safety and to compare with the proof. This will show him what changes have been made and perhaps indicate faults in his writing. In this manner he may indirectly secure helpful criticism.

Typing the Manuscript. A manuscript *should never be typed*

single spaced. No matter how well the paper is written or how carefully it is prepared, the keen eye of the copy editor may find typographic errors, misspelled words, grammatical slips or what not that require interlineation. This is done with difficulty on closely typed manuscripts (see figure 1). Typing should therefore be double or even triple spaced, the latter being preferred by some publications.

Liberal margins should be left on all sides—at least 1½ inches at top and left, and 1 inch at bottom and right. The author should use the margins to indicate the placement of illustrations, tables, charts, etc.

Neatness. Illegibility, smudging or other marked defects in the preparation of a manuscript may give the impression that the research or observation described in the article was equally slipshod and inaccurate and may turn the scale against its acceptance.

A manuscript should be folded, not rolled. When it consists of too many sheets to permit of easy folding, it should be sent flat.

Author's Name. The name and address of the author should appear on each page of the manuscript and on each illustration, chart and table. Typed on page one should appear the title of the article, the author's name and degrees, his appointments and his address. This information should follow as closely as possible the style of articles in the publication to which the manuscript is to be sent. The various items should be separated by sufficient space to permit indication of type sizes and corrections. A 3 inch (7.5 cm.) margin at the upper edge of the first page should be allowed, as printing instructions are written there by manuscript editors. An example follows.

A REVIEW OF FOUR HUNDRED AND FORTY CASES OF PELLAGRA

V. P. SYDENSTRICKER, M.D.

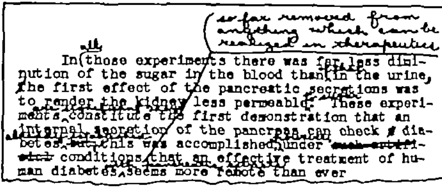
AND

E. S. ARMSTRONG, M.D.

AUGUSTA, GA.

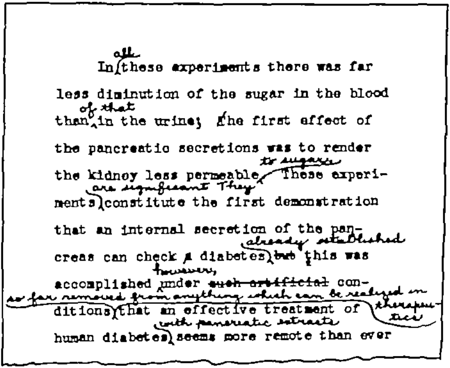
From the University of Georgia School of Medicine and the University Hospital.

The author's office or residence address (street and number) may be placed at the end of his article if he wishes to include it.



In those experiments there was far less dimi-
nution of the sugar in the blood than in the urine,
the first effect of the pancreatic secretions was
to render the kidney less permeable. These experi-
ments constitute the first demonstration that an
internal secretion of the pancreas can check # dia-
betes but this was accomplished under such artifi-
cial conditions that an effective treatment of hu-
man diabetes seems more remote than ever

FIG 1 Several of the worst mechanical faults are here illustrated single spacing, insufficient margins and corrections that are crowded and hard to read A manuscript exhibiting any of these faults should not be submitted for publication



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less diminution of the sugar in the blood
than in the urine; the first effect of
the pancreatic secretions was to render
the kidney less permeable. These experi-
ments constitute the first demonstration
that an internal secretion of the pan-
creas can check # diabetes but this was
accomplished under such artificial con-
ditions that an effective treatment of
human diabetes seems more remote than ever

FIG. 2. Wide spacing and ample margins give opportunity for legible corrections.

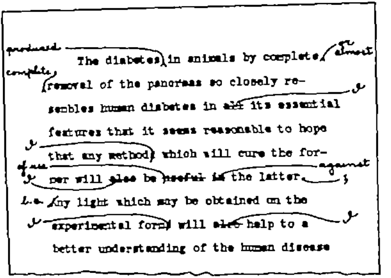

The diabetes in animals by complete removal of the pancreas so closely resembles human diabetes in all its essential features that it seems reasonable to hope that any method which will cure the former will also be useful in the latter. Any light which may be obtained on the experimental form will also help to a better understanding of the human disease

FIG. 3. This manuscript has been corrected as if it were proof, using guide lines which make it unnecessarily hard to read. Figure 4 shows proper way to make corrections in manuscript.

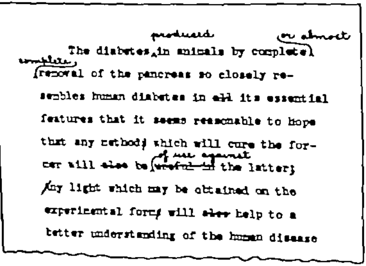

The diabetes in animals by complete removal of the pancreas so closely resembles human diabetes in all its essential features that it seems reasonable to hope that any method which will cure the former will also be useful in the latter; Any light which may be obtained on the experimental form will also help to a better understanding of the human disease

FIG. 4. This manuscript has been corrected properly

General Rules. In summary the following directions for preparing a manuscript are important

1 Use unglazed white paper of good quality, 8½ by 11 inches in size.

2 Type in double or triple space on only one side of the paper, leaving good margins on all sides.

3 Type tables on separate sheets, as these usually are set on a different typesetting machine from the text. Indicate in the margin of the text where each table should be inserted.

4 Type footnotes (also double spaced) on separate sheets at the end of the article or chapter or immediately after their text references, depending on the practice of the periodical to which the article is submitted Be sure they agree in number with their respective references in the text

5 Type legends for illustrations on a separate sheet at the end of the manuscript. Number the legends in sequence to agree with the illustrations.

6 Type quoted material double spaced, using quotation marks for short excerpts. Quotations more than a few lines long should begin on a new line, and their exact extent should be indicated by a vertical line in the left margin. Obtain written permission from the copyright holder

7 Number sheets in consecutive order in the upper right hand corner

8 Fasten sheets together with pins, clips or other easily removable fasteners Do not submit manuscripts that have been permanently bound as this makes for difficult handling by editors, compositors and proofreaders

9 Do not paste, pin or clip illustrations to manuscript Do not write heavily on the backs of photographs so that the impression will show on the reverse side. If necessary for identification write lightly in the margin.

10 Number the illustrations in sequence and indicate in the margin of the text where they are to be inserted

11 Indicate paragraphs clearly either by the usual indention or by the use of the paragraph mark, ¶

12. Make all corrections on manuscript in ink, preferably black or blue-black. Do not use pencil or colored crayon.

13. Put any necessary corrections between the typewritten lines of the manuscript, using a caret to indicate place of insertion. Retype any sheet bearing numerous corrections.

14. Draw a horizontal line through words or phrases to be deleted. If several paragraphs or pages are to be eliminated, draw an oblique line through such matter.

15. If several pages are deleted from the manuscript, the pages should be either renumbered or so numbered at the top as to indicate the omission. For example, if three pages are deleted (pages 25 to 27), the page following 24 may be marked "25–28." If a page is inserted—say between pages 5 and 6—it may be marked "5a" with the notation "Page 5a follows" at the bottom of page 5 and "Page 5a precedes" at the top of page 6.

16. Mark off by brackets any material to be transposed from one portion of the manuscript to another, indicating the transposition by the notation "Transpose to page —." On the latter page, clearly indicate where the transposed material is to be inserted, with the notation "Insert from page —." Better yet, cut the copy apart and paste in the inserts where they belong (using rubber cement, *not* Scotch tape), or retype the material in correct order, as printers find this easier to handle.

17. Write the word "End" at the bottom of the last page of the manuscript. Also state at this point whether or not there will be an index.

18. Submit the original typing to the publisher, retaining a carbon copy for comparative reading.

General Rules. In summary, the following directions for preparing a manuscript are important

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9 *Do not paste pin or clip illustrations to manuscript* Do not write heavily on the backs of photographs so that the impression will show on the reverse side If necessary for identification, write lightly in the margin.

10 Number the illustrations in sequence and indicate in the margin of the text where they are to be inserted

11 Indicate paragraphs clearly either by the usual indention or by the use of the paragraph mark ¶

block in which the same three illustrations are combined. Two of the pictures could be placed side by side, making a cut less than 5 inches (12.5 cm.) wide and the third block centered above or below. Figures 5–10 show how and how not to group illustrations.

A better appearance is secured if single pictures or groups of pictures are higher than they are wide, as is the page of most periodicals.

A column in *The Journal of the American Medical Association* is $3^1/_4$ inches wide and a two column format is used; drawings should be planned to require no more than 30 per cent reduction to bring them down to proper width (see figure 11).

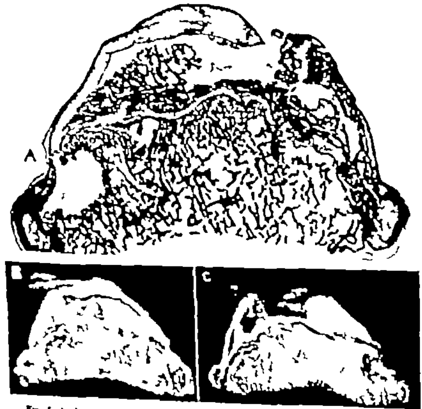


Fig. 5. A photograph (B) and roentgenogram (C) are combined with a photomicrograph (A) of section of the head of the femur. The grouping facilitates comparison of the three pictures and conserves space, hence lowers cost. "A," "B" and "C" made as separate cuts would cost about 20 per cent more than the arrangement shown. The photographer can make his prints the proper size for such combined mounting.

13

Illustrations

Good pictures are eloquent frequently one small illustration will convey more to the reader than could be explained in several pages of text matter Such an illustration nearly always has evolved from a thorough understanding of the material and a well chosen attitude from which to present it. Many authors, however, submit huge numbers of illustrations with their manuscripts, regardless of whether or not the pictures are necessary to bring out adequately the points made in the text and even regardless of whether they bring out any point at all Few journals can afford to reproduce large numbers of illustrations. Therefore, unless the author is willing to contribute toward the costs of reproduction of his illustrations, he should curtail the use of pictures as much as possible, selecting for reproduction only those which he feels are required to illustrate points to be emphasized Care in planning illustrations will reduce their number materially and the omission of extensive backgrounds will reduce the size of the finished engraving which governs its cost.

Readers of scientific journals may be assumed to be familiar with the normal appearances, gross and microscopic, of the various organs, hence illustrations of normal conditions should be used only when required for the sake of contrast. The first rule regarding illustrations, therefore is that they should *illustrate* Only after this function has been fulfilled may the artistic elements be considered

PREPARATION OF ILLUSTRATIONS

In preparing illustrations for publication, the author should consider the size of the type column and the size of the page of the periodical in which the article may appear The illustrations should be of a size that, with reasonable reduction, can be accommodated to the type column

Sometimes pictures can be grouped to advantage thus permitting saving of space and expense For instance three blocks $2\frac{1}{4}$ inches (6.3 cm.) wide by 3 inches (7 5 cm) high will cost more than one

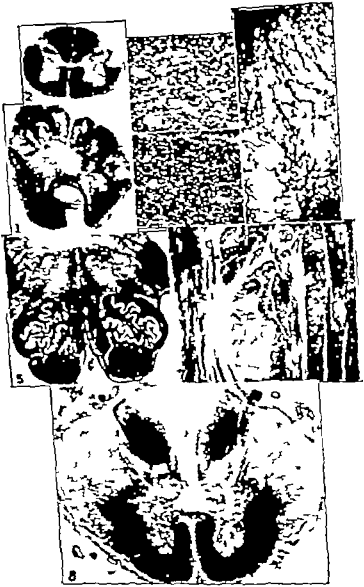


FIG. 7 The photomicrographs shown in figure 6 have been recombined, with sections of similar size and shape in proximity. The sections are slightly larger than in the preceding figure, but the height of the cut remains the same. Had the lettering been done after this arrangement was made, the numbers could have been inserted in the proper sequence.

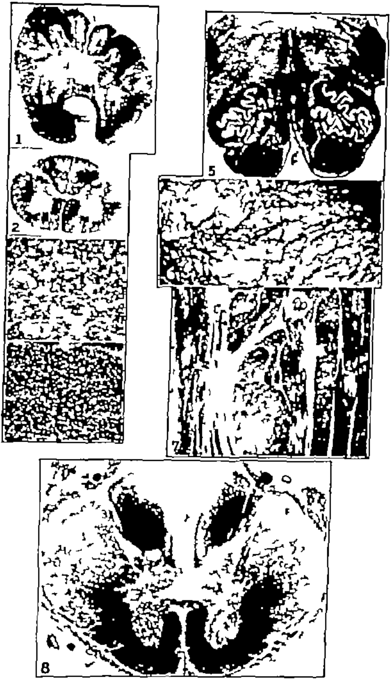


FIG 6 When sections of various sizes and shapes are combined at random, there is lack of symmetry

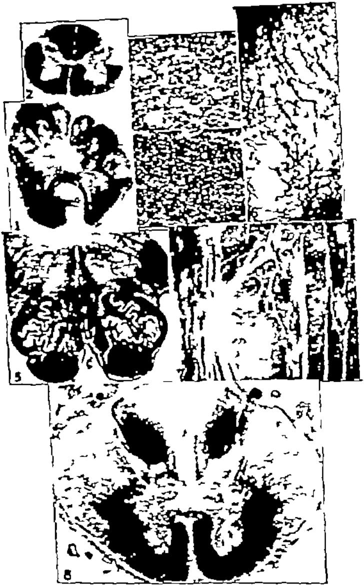


FIG. The photomacrographs shown in figure 6 have been recombined, with sections of similar size and shape in proximity. The sections are slightly larger than in the preceding figure, but the height of the cut remains the same. Had the lettering been done after the arrangement was made, the numbers could have been inserted in the proper sequence.

Illustrations should be suitably numbered and their position in the manuscript should be indicated even though it is not always possible for the printer to follow these directions implicitly. The number of the picture and the name of the author should appear on each, and the top should be marked. Labels for identification of illustrations may be procured from stationers. These should be large enough to provide space on which may be recorded the names of both the author and the journal in which the article is intended to appear, the number of the figure and any instructions concerning reduction or reproduction that it is deemed desirable to furnish. It is inadvisable to write on the back of a photograph since this may mar its surface. If, however, labels are not available and it is necessary to write on the back for purposes of identification, a soft pencil should be used and little pressure applied.



FIG. 8. The use of the small inset on an unimportant area of the picture makes the overall cost of one illustration cover both.

Since medical illustration in recent years has attained such a high standard of perfection, any article illustrated by amateurish pictures suffers by comparison with the other articles in almost any journal. This is also true of photography. Competent medical illustrators are available in nearly every large city today; if not, artists can be recommended by the editors or publishers. Early consultation between author and artist will result in useful illustrations.

When the illustrations constitute a major part of a paper, their suitability to a simple type of reproduction may be a factor in the acceptance or rejection of the manuscript. Here the experienced artist,

familiar with photoengraving methods, can render substantial aid to both author and publisher

The artist should be given all available information concerning the journal in which the article is planned to appear Page size, column width, etc., are important in planning the drawing size and the amount of reduction necessary

Photographs and drawings intended for periodicals are preferably mounted with rubber cement on white cardboard, leaving margins all around on which technical directions may be added. If the mounts are uniform, packaging is simplified. Book publishers often prefer to mount illustrations themselves according to the makeup planned.

Clips or pins should not be used to fasten photographs, particularly glossy prints. They leave impressions or holes in the photographs which cannot be eradicated in reproduction.

Illustrations should be sent flat—never rolled or folded—and protected with cardboard. A crease made in folding cannot be eradicated in the process of reproduction and will mar the surface of the picture

LABELING ILLUSTRATIONS

After the illustration has been prepared, the author should make certain that the significant points are clearly apparent and that they will come to the attention of the reader Special attention can be called to these points either by a special reference in the legend to appear under the picture or by lettering placed on the photograph itself

Letters, words and numbers placed on the surface of the picture should be sufficiently large to be legible when reduced to the size indicated and should be neatly made with a view to securing a pleasing appearance after reproduction, hence a plain, open-faced style is preferred

Judicious use of labels incorporated in the drawing and fully spelled out should not detract from the appearance of the drawing The use of coded labels (*a*, *b* *c* etc., or *1* *2*, *3*, etc.) with their interpretation in the legend under the illustration is apt to discourage the careful study of the picture by causing the eyes to be constantly shifted (compare figures 12[*A*] and 12[*B*])

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When the illustrations constitute a major part of a paper their suitability to a simple type of reproduction may be a factor in the acceptance or rejection of the manuscript. Here the experienced artist,

breviations should be used (m., a., v., n., for muscle, artery vein, nerve, respectively, and inf., sup., int., ext., in anatomic terms are acceptable) Consistency in the use of some standard terminology will add to the value of a series of illustrations, especially since these same illustrations may later be borrowed by other authors.

The lettering may be done by a competent draftsman, or printed characters may be obtained to be pasted on the illustrations. These characters, however while usually satisfactory from the point of view of appearance, do not always adhere to the illustration—particularly to a glossy surface. Sometimes they are lost after the pictures pass through the editorial office, and the loss is not detected until the author receives the proof Any insertions or changes after the blocks have been made require the making of a new block and mean added expense.

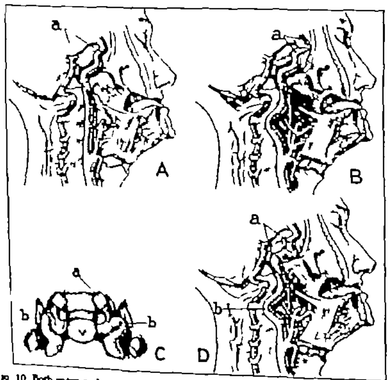


Fig 10 Both space and expense are saved by the proper mounting of the pictures shown in figure 9

Labels should be placed so as to require as little extra space as possible, and thus not increase the cost of reproduction It is generally desirable, therefore, to place black letters on unessential white areas within the picture or white letters on black areas, making the dotted lines and the lettering come entirely within the body of the photograph

When abbreviations in labels are necessary only standard ab-

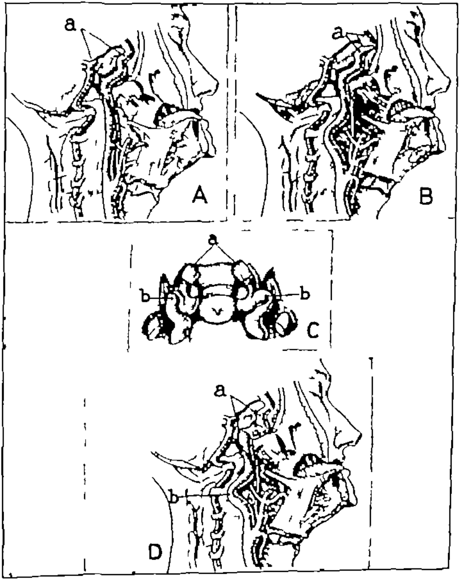


FIG 9 These drawings and their lettering are satisfactory enough but the background on "*D*" should have been trimmed to match "*A*" and "*B*" before mounting This arrangement wastes too much space, as may be seen by comparison with figure 10.

not enough space has been left for the lettering which is to appear at the end of each line (see figure 13)

LEGENDS

A full descriptive legend to be placed beneath each picture should be provided. The legends should be numbered in sequence to correspond with the pictures and should be typewritten on a separate sheet at the end of the manuscript, not on the illustrations. They must be given the same care in composition and in expression as is the material in the body of the article. The legend should explain fully all the important points brought out by the illustration and identify each of the letters, numbers, arrows or other marks included within the picture

PERMISSIONS

Many people object to having their photographs published in scientific periodicals. The author of an article containing such a photograph either should secure from the patient written permission for publication and inform the editor of the periodical to which the article is submitted that written permission has been secured, or should mask the face in the portrait by blocking out the eyes with India ink or by pasting over them pieces of paper of a neutral color If pictures depicting conditions about the eyes accompany a paper the patient s written consent to the use of his or her photograph must be secured since the picture would be useless were the eyes blocked out.

When photographs are submitted as scientific proof photographers must be informed that retouching is not to be done on them. However careful retouching by a competent artist will often clarify the contents of other photographs whose details are visible to one familiar with the case yet too vague to be useful to the reader (see figure 21)

Frequently an author wishes to use one or more illustrations that have been published elsewhere. In such instances the author should secure written permission from the original author or from the publisher since the better periodicals and books are copyrighted. A statement that written permission has been obtained should accompany the manuscript when it is submitted for publication. Otherwise

Perhaps the best method of marking points to be indicated by guide lines and side labels is to cover the illustration or photograph with a sheet of tracing paper, transparent enough to be easily seen

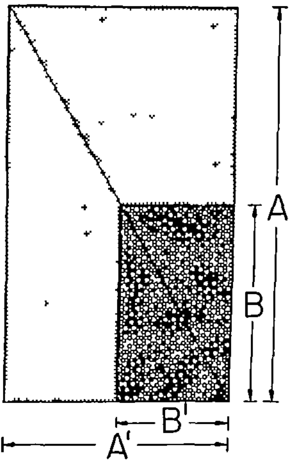
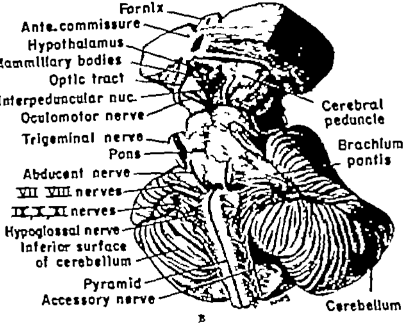


FIG. 11 Reduction of illustrations is always based on linear dimensions. When light area measuring $A \times A'$ is reduced one half to size $B \times B'$ the resulting area is one fourth of the original. This figure shows the use of shading film. Area $A \times A'$ is single thickness while area $B \times B'$ is a double thickness of the same pattern. The overlapping of the films can produce a wide variety of patterns.

through, on which the author may mark his choice of those structures to which the reader's attention is to be called. This permits the editor to use either the side or the top or bottom margin for the lettering necessary to identify the structures. If guide lines have already been ruled on the illustration by the author it frequently happens that



B

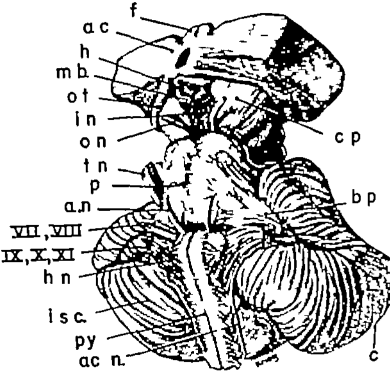
FIG. 12(*B*) Here the reader finds each structure with its name close at hand. The vertical column space occupied by this figure is the same as figure 12(*A*) opposite, and the space taken up by the legend below figure 12(*A*) has been saved here. (Krieg: Functional Neuroanatomy. New York, The Blakiston Division, McGraw-Hill Book Co., Inc.)

must be made with pure black ink, or in the case of lithograph pencil, the strokes must be placed firmly so as to produce pure black patterns. Shading on such drawings must be made by lines, cross hatching or stippling or by the use of Ben Day tints or shading film (see page 161 and figure 11)

Halftones. Photographs or drawings that have been prepared properly lend themselves to satisfactory reproduction by the halftone process. This method must be used if lines of tones intermediate between black and white are used in drawing. (See pages 149–154.)

ZINC LINE ENGRAVINGS

Zinc line engravings are used in the reproduction of line drawings (see figure 14) and of printed matter appearing in black and white. The original drawing is preferred to a photograph of it, since some of the clearness and detail are lost each time an illustration is submitted to a photographic process.



A

FIG 12(*A*) (*a.c.*) Anterior commissure (*a.n.*) abducent nerve (*ac.n.*) accessory nerve (*b.p.*) brachium pontis (*c*) cerebellum (*c.p.*) cerebral peduncle (*f*) fornix (*h*) hypothalamus (*h.n.*) hypoglossal nerve (*i.n.*) interpeduncular nucleus (*i.s.c.*) inferior surface of cerebellum (*m.b.*) mamillary bodies (*o.n.*) oculomotor nerve (*o.t.*) optic tract; (*p*) pons (*py*) pyramid (*t.n.*) trigeminal nerve (*VII VIII IX X XI*) 7th, 8th, 9th, 10th, 11th cranial nerves.

(Use of abbreviated labels forces reader to shift from figure to legend for interpretation.) Compare this with figure 12(*B*) (Krieg: Functional Neuroanatomy [with modified side labels], New York, The Blakiston Division, McGraw Hill Book Company Inc.)

the publisher will be put to the trouble of asking the author if such permission has been granted and this usually causes delay in publication. Complete information (see chapter entitled Bibliographic Material for definition of a complete reference) concerning the source of the illustrations should be included either in the legend or in a footnote. The author should be sure that borrowed illustrations do not contain contradictions to statements made in his paper

CHOICE OF MEDIUM FOR REPRODUCTION

Zinc Line Engravings. Line drawings made with pen and ink on bristol board or black lithograph pencil on rough or stipple paper can be reproduced as zinc line engravings, which cost from a half to a third as much as halftones (see figure 14) Drawings of this sort

Drawings made with ordinary lead pencil are rarely reproduced satisfactorily by this method as a rule they must be returned for redrawing or be reproduced by the halftone process.

The process of reducing will soften the drawing and give the reproduction a more finished appearance. Drawings should be neatly done: straight lines should be made with a ruler and circles with a compass. The average physician, not having had the training of a draftsman, usually is not competent to make creditable drawings. Therefore, most medical periodicals cooperate with the author by having a competent artist do the work for him from a rough sketch that may be submitted (see figures 15 and 16)

HALFTONE ILLUSTRATIONS

The halftone process is used for the reproduction of charts and drawings with gray shading and of photographs—patients, tissues and appearances under the roentgen rays.

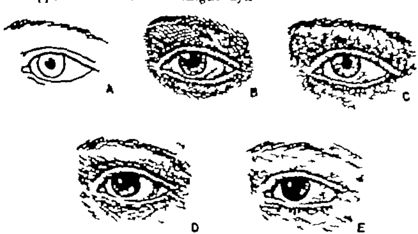


Fig. 14. Various art techniques suitable for reproduction by the zinc line engraving process.

(*A*) Simple outlines of structures.

(*B*) Lines and cross hatching for differentiation of parts.

(*C*) Stippling to explain form by light and shade.

(*D*) Lithograph pencil on rough paper with corneal reflex painted in with Chinese white.

(*E*) Lithograph pencil on no. 1 Ross Stipple Board. In this drawing the iris of the eye was painted solid black and by lightly scratching the tops of the stipples a much darker tone was produced than could be secured by pencil alone. The corneal reflex has been scratched out.

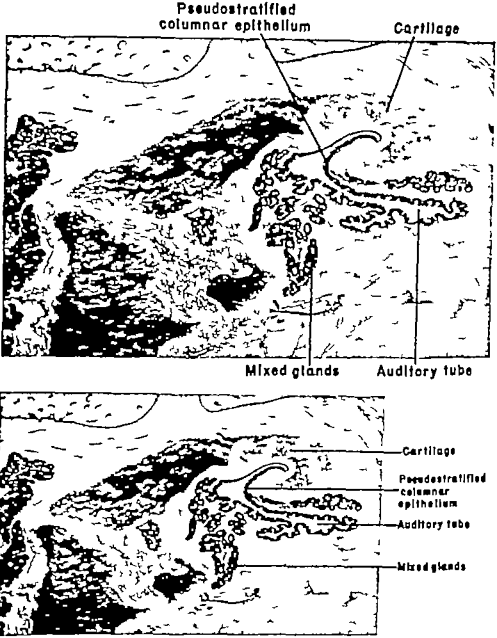


FIG 13 The upper and lower parts of this figure demonstrate proper and improper use of guide lines. On the lower figure the guide lines had already been drawn in ink, making it necessary to reduce the drawing in order to provide space for labels. In the upper figure full column width is available for the illustration, the labels being fitted in above and below the photomicrograph.

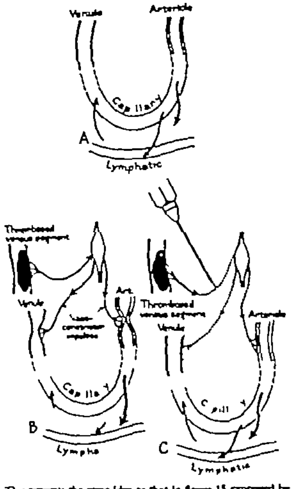


FIG 16 This presents the same idea as that in figure 15 expressed by an experienced artist to whom the original sketch was sent for revision. Crisp clean lines and legible lettering convey the meaning of the author with the added advantage of well planned arrangement to fit the type page. The reader will instinctively put his faith in this useful explanatory diagram.

must work around it very carefully To escape this the engravers resort to *combination plates* which are actually a combination of two films—one of the halftone, outlined, the other a strong contrast film of the lettering, the two being carefully superimposed and the plate etched. This method, while producing attractive plates, has, besides its added expense of hand work, a very definite hazard, for the illus-

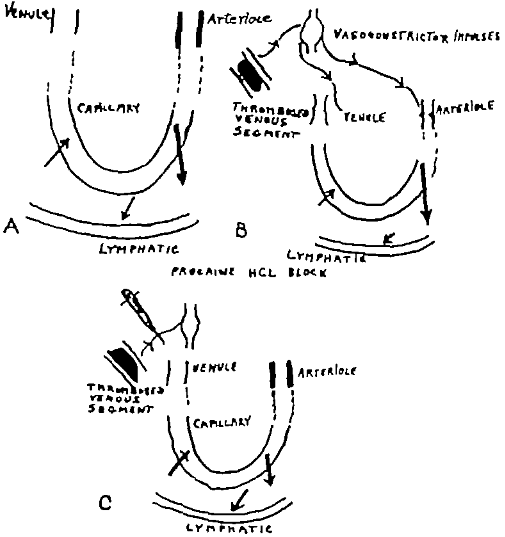
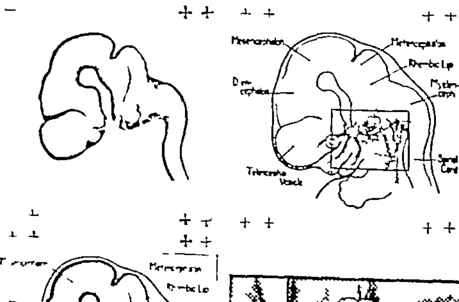


FIG 15 This drawing submitted for publication obviously is the author's attempt at illustration Functionally it is almost adequate, but lacks clarity of expression In another sense, it is a communication of an idea, sound enough in itself, but needing revision of its "grammar" to convey its meaning

The ideal photograph is a perfect print on paper with a glossy finish. Tone drawings with few or no hard black lines usually result in good illustrations by the halftone process.

Halftone engravings are made in two major styles *square finish cuts*, in which the background is left with its light gray tint made up of tiny dots and *outlined cuts* in which the engraver cuts this background away This latter process is much more expensive since it is hand work, and if the background contains any lettering the engraver

Cuts made by this method, however, cost three times as much as regular halftones and the author may be asked to bear part of the costs—in other words, all over and above the cost of regular half tones.

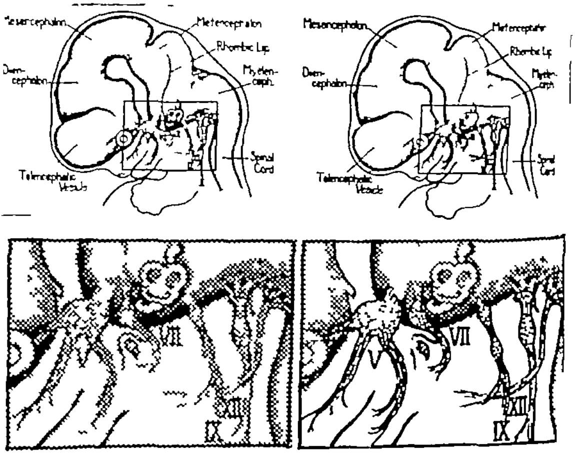


B

Fig. 1 (B). An example of "double printing." In the two upper figures is shown the method of preparation of "copy" by the artist. The unlettered drawing is submitted with the lines and lettering on a transparent "overlay," which is registered carefully over the drawing by means of "register marks" (⊕ ⊕ or + +). These are placed outside the picture area and exactly traced on the overlay. The drawing and overlay are photographed separately by the engraver who then strips the "line" film over the halftone film and etches the plate. The figure on the lower left shows the result of this method, while the lower right illustration is an enlargement of the rectangle in which may be seen the solid blacks of the lines and lettering.

tration's outlines, which may have been soft and hazy in the original, now emerge very sharply contrasted to the white paper and sometimes upset the balance of light and shade which the artist worked hard to achieve. Then, too, the engraver, not being familiar with the subject matter, may unwittingly distort the outlines. (See figures 17[A] and 17[B].)

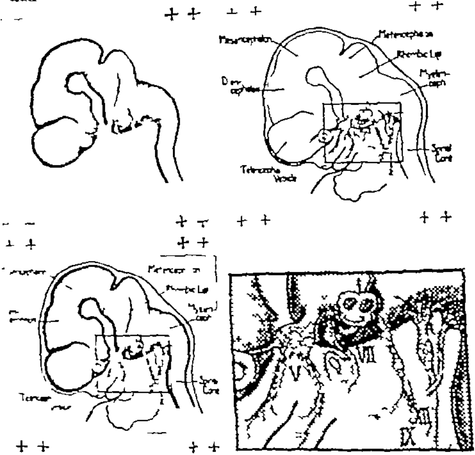
When unusual contrast is deemed desirable by the author, a method of reproduction called *dropped highlights* can be employed.



A

FIG. 17(*A*) The halftone process of reproduction (*Upper left*) "Square finish" plate with "screen" over entire picture, lines and lettering (*Upper right*) "Combination" plate on which the halftone is confined to the picture, while the lines and lettering outside are solid blacks. The engraver has mechanically removed all "screen" from the background before superimposing the "black" film over the "halftone" film prior to etching (*Lower left*) An enlargement of the area shown in the rectangle of the "square finish" plate to show the over-*all screen*. Compare this with the same rectangle enlarged from the "combination" plate (*lower right*)

Cuts made by this method, however, cost three times as much as regular halftones and the author may be asked to bear part of the costs—in other words, all over and above the cost of regular half tones.

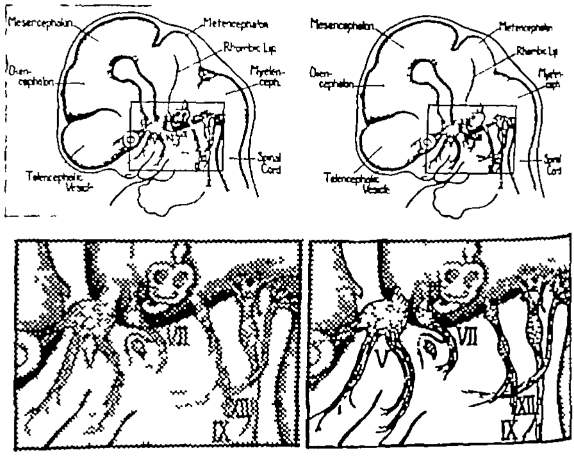


B

FIG. 1 (B) An example of "double printing." In the two upper figures is shown the method of preparation of "copy" by the artist. The unlettered drawing is submitted with the lines and lettering on a "transparent overlay" which is registered carefully over the drawing by means of "register marks" (⊕ ⊕ or + +). These are placed outside the picture area and exactly traced on the overlay. The drawing and overlay are photographed separately by the engraver who then strips the "line" film over the halftone film and etches the plate. The figure on the lower left shows the result of this method, while the lower right illustration is an enlargement of the rectangle in which may be seen the solid blacks of the lines and lettering.

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Fig. 17(*A*) The halftone process of reproduction (*Upper left*) "Square finish" plate with "screen" over entire picture, lines and lettering (*Upper right*) "Combination" plate on which the halftone is confined to the picture, while the lines and lettering outside are solid blacks. The engraver has mechanically removed all "screen" from the background before superimposing the "black" film over the "halftone" film prior to etching (*Lower left*) An enlargement of the area shown in the rectangle of the "square finish" plate to show the over-all screen Compare this with the same rectangle enlarged from the "combination" plate (*lower right*)



Fig. 18 The blurred and dull background seen in "f" was painted out, so that in "g" there is nothing to detract from the lesions.

When the photograph is being taken, the camera should be focused on the detail to be shown. Keep prominently in mind that in all probability the picture will have to be reduced for publication hence an unnecessary expanse of general background, the physician or nurse responsible for the patient, apparatus that has no direct bearing on the condition and similar nonessentials (see figures 18–21) should be eliminated, so that the space available will be devoted not to the background or to the wording but to the object to which attention is called It is possible to have all unnecessary details airbrushed out by the photographer (see figure 18), but retouching of this kind is expensive and may result in the loss of portions of the picture that are essential or in other modifications that are not desirable.

PHOTOMICROGRAPHS

If the author has large photomicrographs, before submitting his article for publication he should decide how much they are to be reduced to be accommodated to the page size of the periodical. Some authors prefer to trim their photomicrographs rather than to have the magnification reduced others desire to show the entire picture and have it brought down to the required size by reduction in the magnification Consequently, when large photomicrographs are submitted without instructions as to the method by which they are to be reduced to fit the type column, correspondence is entailed and sometimes delay in publication results. Reproductions of photomicrographs for publication in *The Journal of the American Medical Association* should be not larger than 3¼ inches (8 cm.) in either width or height. The width of the type column of any journal for which an article is intended should be similarly noted. A better appearance will be obtained if illustrations do not exceed that measurement in width or height, although they may be a little larger if this is unavoidable (see figures 22–24) Notes on magnification should be readjusted after the reproduction size has been decided but these should never be marked on the photographic print.

ROENTGENOGRAMS

Roentgenograms should be reproduced as interpreted by the roentgenologist—i e. with opaque masses white and translucent tissues dark If a contact print is furnished this order will be reversed



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FIG. 18 The blurred and dull background seen in "A" was painted out, so that in "B" there is nothing to detract from the lesions.

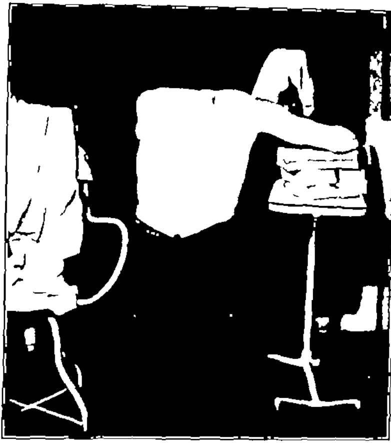


FIG 19 The inclusion of chair and table in the foreground distracts attention from the patient and necessitates so much reduction that the lesions on the man's back are barely visible.

and, in addition, important details are lost in the process. Hence a better illustration results if made from the actual film.

In preparing the roentgenogram, the experienced roentgenologist will mark it to identify the essential points. The markings, however should not be so obtrusive as to mar the effect of the complete reproduction The points of importance may be suitably identified by the insertion of lines on the roentgen ray film (see figure 26)

To the physician who secures it, and to the reader, the roentgen ray photograph is actual evidence of the facts brought out in the case report. If an author is trustworthy and reliable, he need not provide actual evidence for his reader but he should select his roentgenograms on the basis of new points to be brought out in the specific case It is unnecessary to include six roentgenograms to illustrate a niche in the

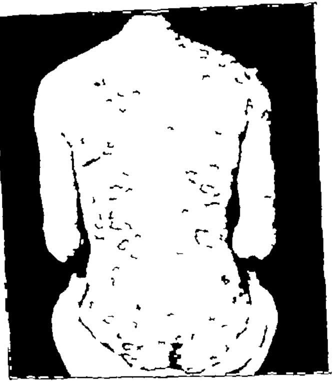


Fig. 20. In this photograph of the patient seen in figure 19 the lesions are emphasized.

stomach as it occurred in six cases unless something distinctly new is to be presented concerning each of these niches. In a paper describing a method of making the ureters, the kidneys or the gallbladder visible by the injection of an opaque substance, it is unnecessary to have more than one or two pictures showing the results of the process. Obviously the best in the series will be selected. The author may then state in his text that 18 or 20 similar plates were prepared.

A study of the medical periodicals received at the headquarters office of the American Medical Association and also of manuscripts submitted indicates clearly that an undue amount of both money and labor is being expended on the reproduction of superfluous roentgenograms. In certain instances the details to be brought out by a roentgenogram are visible on the original plate but so much is lost in reproduction that the illustration is practically worthless. In

such instances it is better to submit a diagrammatic outline of the roentgenogram, to be published with the roentgenogram or by itself, and to state in the legend that it is made directly from the original roentgenogram. Obviously, only the parts of a roentgenogram which

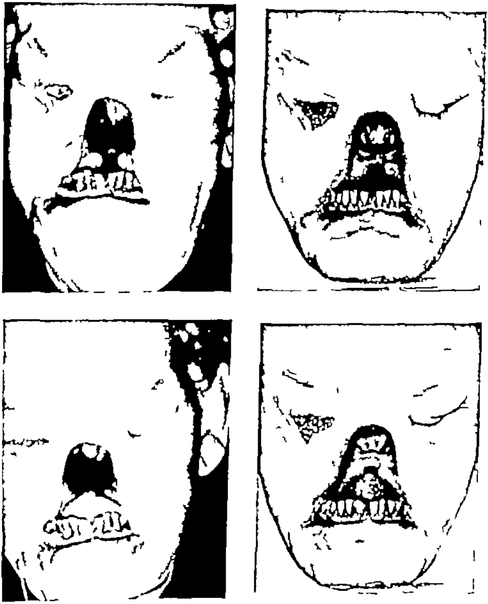


FIG 21 On the left are shown flashbulb photographs of a patient, while on the right are drawings made from these photographs and from the patient in which the artist has emphasized the details. The author decided to show drawings and photographs *together* the latter serving to authenticate the former (Courtesy Dorrance. The Operative Story of Cleft Palate, Philadelphia, W B. Saunders Co.)



FIG. 22. This photomicrograph was 7½ inches (19 cm.) high. Reduction to height of 4½ inches (11.5 cm.) has resulted in loss of both detail and clarity

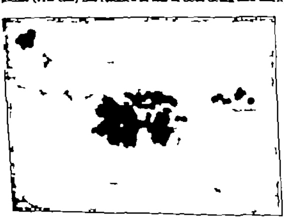


FIG. 23. The significant portion of the photomicrograph shown in figure 22 has been reproduced with its original magnification.

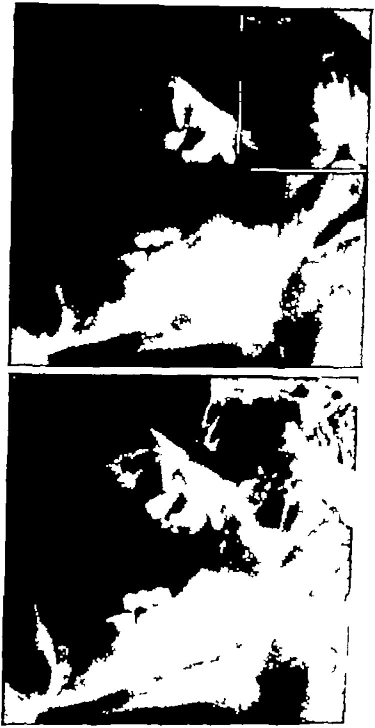


FIG. 26. Two lines (*top*) which stop short of intersection at the point of interest are preferred to a single arrow (*bottom*). The first method leaves no doubt as to the emphasis, while an arrow, if close, may give too great a contrast and so obscure delicate shadows in the roentgenogram. (Miller: Oral Diagnosis and Treatment, New York, The Blakiston Division, McGraw-Hill Book Company, Inc.)

COLORED ILLUSTRATIONS

The reproduction of illustrations in color is expensive; in a periodical of the circulation and page size of *The Journal of the American Medical Association* the cost is prohibitive. It is suggested, therefore that if possible some means other than the color process be devised to depict what it is desired to show. In drawings, for instance it is possible to use varieties of cross hatching and stippling to differentiate the various portions; the significance of these various forms may be explained in the legend to appear under the illustration. Here again one of the shading processes mentioned on page 161 or shading film (see figure 11) may be used to avoid the expense of color reproduction.

The American Medical Association Press has adopted the following rules relative to the reproduction of illustrations in color: If the editors believe that an illustration should be reproduced in color the Association Press will pay part of the expense, the rest to be borne by the author or by the institution with which he is connected. If it appears that an illustration will be as satisfactory if reproduced in black and white, all the expense must be borne by the author if he desires to have it reproduced in color.

The printing of colored inserts for the author's reprints is also expensive and this cost of course must be met entirely by the author.

RETURN OF ILLUSTRATIONS

If the author wishes his illustrations returned, the word "Return," together with his address, should be written on the label on each picture, and in submitting his manuscript the author should specifically request the return of the illustrations after publication. It is necessary that illustrations be held by the publisher until the article is in pages, so that they may be properly identified by the proofreaders.

SUMMARY OF RULES PERTAINING TO ILLUSTRATIONS

1. Illustrations must illustrate.

2. Illustrations should be correctly numbered and identified. On the mounting of each the author should indicate the top and give his name and the number of the illustration. This is done preferably by means of a paper label pasted on. On request, the American Medical



FIG. 26. Two lines (*top*) which stop short of intersection at the point of interest are preferred to a single arrow (*bottom*). The first method leaves no doubt as to the emphasis, while an arrow, if close, may give too great a contrast and so obscure delicate shadows in the roentgenogram. (Miller: Oral Diagnosis and Treatment, New York: The Blakiston Division, McGraw-Hill Book Company, Inc.)

trations are more necessary than the text—on one condition, it is true, that they are, like ours, copied with the most scrupulous attention to detail from irreproachable preparations. Such illustrations are nature itself, the facts themselves, to be submitted to examination and free interpretation by a host of observers. They are likewise documents of infinite value to which future generations can have recourse in the continuous struggle of opinions and theories. The text itself represents the author—that is, one of many ways of looking at nature and facts—with his unavoidable tendency to twist and simplify according to the ineradicable conditions of his mental processes.

Association will provide labels in quantities of 12 or less for manuscripts to be submitted for its publications.

3 Illustrations should be sent flat—never rolled or folded

4 Indication should be made in the margin of the manuscript at the place where the author would like to have each illustration inserted

5 Expense can be saved by grouping illustrations when this is feasible. Such groups should be published as text figures, not as plates, and the individual sections should be lettered instead of numbered

6 Lettering on illustrations should appear, preferably, within the borders of the picture.

7 Because the cost of reproducing illustrations is such an important item, the American Medical Association Press has adopted the policy of requesting authors to assume part or all of the expense of publishing illustrations in color as well as the cost of reproducing what it considers more than a reasonable number of black and white illustrations. The cost of reproducing illustrations in society transactions must be borne by the author or by the society

CONCLUSIONS

Suitable illustrations attract the interest of a reader and if well selected and properly reproduced are likely to cause more readers to familiarize themselves with the contents of an article than would otherwise notice it. Obviously, the eye is caught by the picture even before the reader's attention is attracted by the title or by the text Moreover illustrations can constitute actual scientific evidence. Their preparation should be given meticulous attention In this connection, the following paragraph from the preface of S Ramón y Cajal's "Histologie du système nerveux de l'homme et des vertébrés"[1] is interesting

> Illustrations, some in black and white and others in color clarify the text of this volume their number is considerable. There are never enough illustrations, especially in works on anatomy in which, it might be said, the illus-

[1] Ramón y Cajal, S.: Histologie du système nerveux de l'homme et des vertébrés, Paris, A. Maloine, 1909

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14

Tables and Charts

Graphic methods of presentation add greatly to the interest of scientific papers. Through tables and charts, almost at first glance the reader may obtain an understanding of the salient features that he might secure only with difficulty from the complete text.

TABLES

Data should be tabulated only when it is possible to present them more vividly in that form than in the text. An unwieldy table is likely to be studied by few readers. As tabular matter usually is handled on a separate typesetting machine, each table should be typewritten on a separate sheet of paper with the author s name on either the front or the back. The tables may then be given to the compositor without delaying the preparation of the other material For the sake of appear ance, it is desirable that a uniform style be followed in tables. If there is more than one table, they should be numbered consecutively and each should have a descriptive heading A typical heading is as follows

Table 3 —Distribution of Patients According to Age

The headings of the vertical columns should indicate the subjects chiefly concerned The variations should be indicated in the left hand column, in which can be given the period of the various observations or the record number of the animals, cases or other objects to be con trasted In other words, the vertical columns contain the like data

Tables can almost always be condensed Often a factor that is common to all entries in a column can be incorporated in the head ing of the column, thus saving space A column that contains no variable factors may be eliminated and the important point covered by a footnote to the table. When there are only one or two variations in 25 or 30 items, frequently it is possible to use a footnote for each of the cases that vary

Footnotes to tables usually are indicated by asterisks, daggers and

similar reference marks, rather than by numbers. The usual sequence of the symbols is * † ‡, § ‖ ¶ and #. If additional symbols are needed, those just listed may be doubled. In inserting footnotes one should take those needed in the headings of the columns first and then those in the body of the table, working from left to right and downward. The accompanying table illustrates the use of headings and footnotes.

TABLE 4.—*Causes of Death in Cases of Diabetic Coma*

	Fatalities in Hospitals in Rochester	Fatalities Elsewhere	Total
Uncomplicated diabetic coma	3	8	11
Cardiovascular disease	4	1	5
Pneumonia and its complications	2	[illegible]	4
Bilateral pyelonephritis with metastatic abscesses	1		1
Septicemia	1		1
Erysipelas	1		1
Acute yellow atrophy and toxic nephrosis (arsenical?)	1		1
Hodgkin's disease	1		1
Hemochromatosis	1		1
Diabetic gangrene	1		1
Advanced pernicious anemia and coma	1		1
Carcinoma (sigmoid flexure)		1	1
Meningitis, tuberculous (?)		1	1
Acute pancreatitis †		1	1
Addison's disease †		1	1
Intestinal hemorrhage from unknown cause		1	1
Heat prostration		1	1
Cause unknown		5	5
Totals	17‡	22‡	39

Cases listed in the text
† Diagnosis verified by necropsy elsewhere
‡ Diagnosis verified by necropsy in 14 cases.
§ Accurate records of confirmation of diagnosis at autopsy not available.

For purposes of condensation, it sometimes is desirable to use abbreviations which it would be undesirable to employ in the text. Standard abbreviations should be employed when they exist. If unusual abbreviations are used, they should be explained in a footnote to the table. (A list of standard abbreviations used in medical and scientific literature appears in the chapter entitled "Abbreviations," page 96.)

In preparing a table the author should bear in mind the size of the page of the periodical in which it is to appear. It is to the advantage

of both the author and the reader to have the table prepared so that it may stand upright rarely does an editor arrange for the insertion of a broadside table—one on its side. When statistical data cannot be presented in any other manner, it is possible to make exceedingly large tables, which are folded and inserted in the periodical after the forms are assembled This, however, is a costly hand process, and it is customary for periodicals to ask authors to bear the extra expense entailed In special instances arrangements are made to spread a table across two facing pages, thus avoiding duplication of material This likewise is not generally desirable, as it involves difficulty in arranging the article in consecutive order in the pages.

As in the case of illustrations or in fact, of any material that has previously been published written permission must be secured from the copyright holder if a table is reproduced from some other periodical The table should be reproduced as nearly in the form of the original as typographic facilities permit, and the fact that it is taken from another source may be indicated as follows

TABLE 1 (from Jones[1]) —*Heights of School Children*

CHARTS

Lines in charts should be differentiated by their composition rather than by the use of different colors. They may be heavy or light continuous or broken (composed of long or short dashes of dots of dots and dashes or of dots, circles and dashes) (See figure 27) A scatter graph may also be used

Much of the paper sold for charting purposes has blue, green, brown or light red cross rulings, which ordinarily are not of the same intensity and which in reproduction give a spotted and broken appearance Usually only every fifth or tenth line is required as a coordinate in locating the points that determine the path of the curve hence chart paper without the intermediate lines—that is, with large squares—or chart paper in which the intermediate lines are light blue and can be dropped in reproduction is preferable. The American Medical Association has prepared chart paper ruled in black, with squares of three sizes, which is supplied to authors at cost.

Charts should be condensed as much as possible to permit reproduction with the least possible reduction. Waste space is avoided by bringing the borders down or up close to the curves at all points and

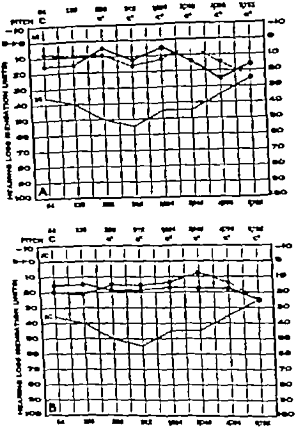


FIG. 27 These audiograms ("A" taken before and "B" after the administration of procaine hydrochloride) illustrate the use of different kinds of lines. The two lines emphasized with dots show the record for the patient—the solid line that for the right ear and the broken line that for the left. The broken line below shows the audiometer readings for a person with normal hearing.

by eliminating from the surface of the chart unimportant or irrelevant data. If a temperature curve ranges from 97 to 104 F., it is unnecessary to reproduce the whole of a temperature chart made to show variations from 95 to 107° F. The temperature chart ordinarily used

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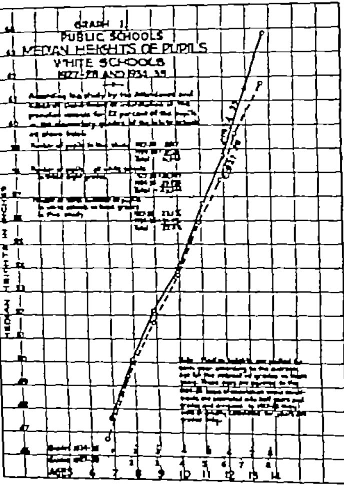


FIG 29 The chart shown in figure 28 as improved by the use of paper with simple, large squares. It might be improved further by elimination of some of the statistical data, which could be included in the legend, in the text or in a table.

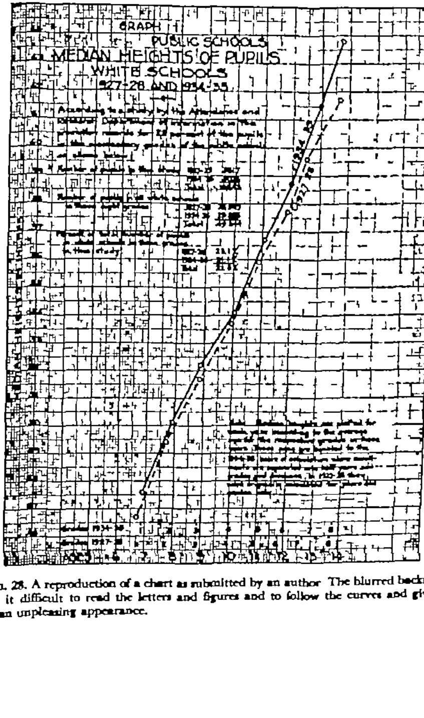


FIG. 28. A reproduction of a chart as submitted by an author The blurred background makes it difficult to read the letters and figures and to follow the curves and gives the chart an unpleasing appearance.

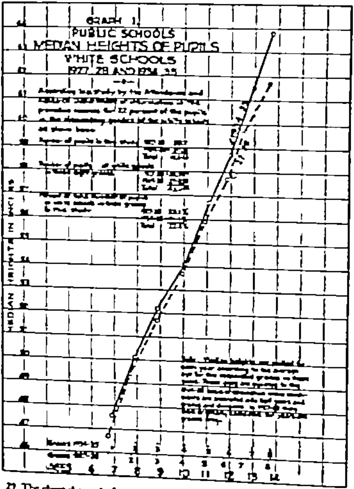


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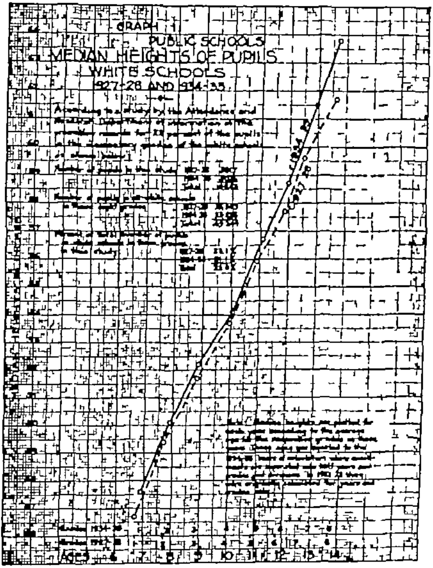


Fig 28 A reproduction of a chart as submitted by an author The blurred background makes it difficult to read the letters and figures and to follow the curves and gives the chart an unpleasing appearance.

to accommodate the chart to the type column. Frequently papers are accompanied by charts so large that they require well over 50 per cent reduction, but the numbers and letters thereon will not permit of more than 5 per cent reduction. Such charts must be returned to the author to be redrawn, which may occasion delay in publication.

Figures 28 and 30 show amateurish charts received for publication and figures 29 and 31 show the same charts after the editor had them redrawn for the author

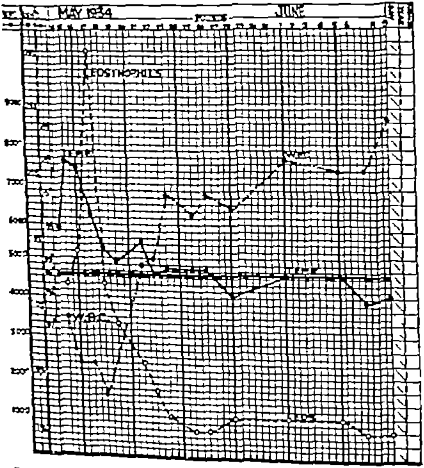


Fig. 31. Clean, well printed chart paper careful lettering and enlarged figures have improved the chart shown in figure 30.

for the hospital record does not reproduce as satisfactorily as the chart prepared particularly to show the temperature, with the varying degrees indicated by printed letters on the left hand margin. Unless neatly printed, words and sentences placed on the face of the chart spoil its appearance, therefore, it usually is better to place letters, numerals, asterisks or other indicating devices on the face of the chart and to explain them in the legend All letters, numbers and symbols on charts should be sufficiently large to permit of necessary reduction

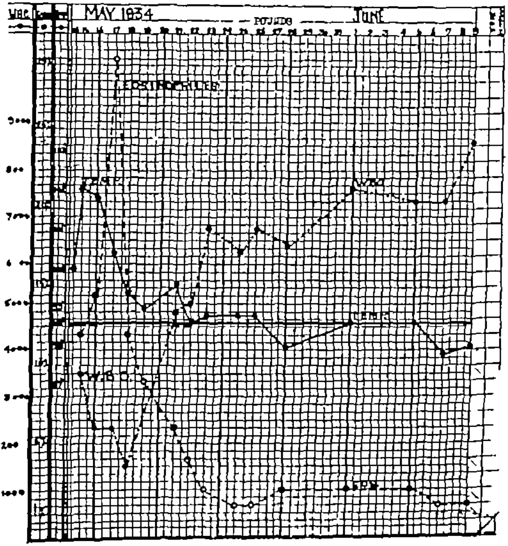


Fig. 30 Broken lines in the background give this chart a spotted and unattractive appearance crooked and illegible letters and crowded and indistinct figures prevent it from conveying the author's information to the reader

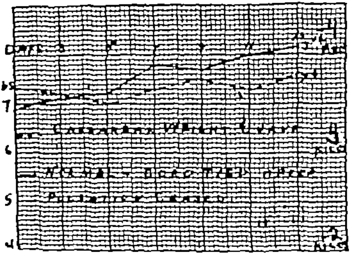


FIG. 33. The chart paper on which this chart was made was ruled in green. Such paper is pleasing to the eye in the original but gives an uneven and muddy effect in the black and white reproduction. The excessive amount of background and of wording, moreover, distract attention from the curves themselves.

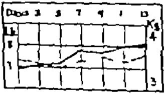


FIG. 34. The chart shown in figure 33 redrawn on chart paper ruled in black, with larger squares. It occupies less space than the original, is more pleasing to the eye and is easier to read. The explanations of the lines would appear in the legend.

The same rules apply in the presentation of statistical data by the use of various shadings. Shading should be done in black and white rather than in colors. For the purpose of contrast, solid black squares may be placed next to white squares or next to squares filled with dots, with oblique lines or with circles. It is the rule of practically all

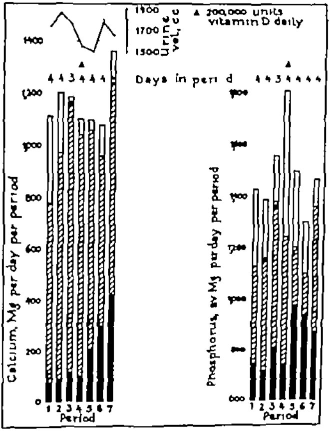


FIG 32. This chart illustrates the use of different kinds of shading

periodicals that the author shall be asked to bear the extra expense of reproducing in color charts in which the data could be presented as well in black and white.

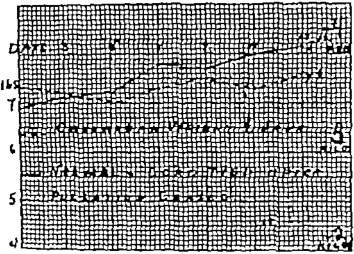


FIG. 33. The chart paper on which this chart was made was ruled in green. Such paper is pleasing to the eye in the original but gives an uneven and smudgy effect in the black and white reproduction. The excessive amounts of background and of wording moreover distract attention from the curves themselves.

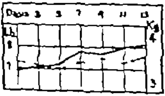


FIG. 34. The chart shown in figure 33 redrawn on chart paper ruled in black, with larger squares. It occupies less space than the original, is more pleasing to the eye and is easier to read. The explanations of the lines would appear in the legend.

15

Revision of the Manuscript

In his well written, interesting and practical book entitled "Notes on the Composition of Scientific Papers," Sir T Clifford Allbutt[1] said that it was his custom to make at least four drafts of a manuscript before it could be considered ready for the printer The first draft was compiled from notes that had been carefully collected on slips and arranged in logical order Redundant words, phrases, sentences and paragraphs were then deleted, resulting in the shortening of the manuscript from 20 to 25 per cent, and sentences out of position or coherence or logical development of thought were moved to better positions. Naturally also second thoughts (in many instances better than first thoughts) were inserted as they occurred

In the next revision, sentences and paragraphs were recast so as to carry but one meaning ornamental and figurative passages were modified or removed, and particular attention was given to the choice of exact words for the meanings to be conveyed After a few weeks had elapsed Sir Clifford again read the entire manuscript with refreshed attention making final additions and revisions.

Consider now how the average manuscript is written The physician surrounds himself with textbooks, reprints, periodicals and penciled notes and starts to write his paper—probably in longhand After more or less worry and possibly some sleepless nights, he breathes a sigh of relief, thanks heaven that it is finished and has it typewritten He may read the typewritten copy and make one or two corrections before sending it to a medical journal more likely he reads the paper before a society and then, without any revision worthy of the name, sends it for publication. Not a few manuscripts offered for publication bear evidence that the only reading given them was that of the typist and that she did not correct her own misspelling "To have a manuscript typewritten," said an editorial writer in the *British Medical*

[1] Allbutt, T Clifford Notes on the Composition of Scientific Papers, ed. 3 London, Macmillan & Co., 1923

Journal "and then to send it for publication without revision is a crime comparable to operating with unwashed hands."

Many physicians have envied Sir William Osler his easy command of English in his writing. In his library is a collection of some of his manuscripts, showing the various stages in their preparation. First are notes on paper of various kinds, evidently written on trains and at opportune moments; then a rough outline in longhand; next the first typewritten copy with interlineations, transpositions and deletions; then the second typewritten copy, which also bears evidence of much modification, and, finally, a third typewritten copy, which evidently was used by the printer. Even this last copy has a few minor corrections.

Anatole France, Nobel prize winner in literature, said that seven revisions are necessary and that an eighth is desirable in order to make sure that the corrections on the seventh have been understood. "In the first," it has been said, "he enlivened what had been platitudinous. The second was for 'weeding out the dandelions,' whos, whiches and whoms. In the third, he eliminated the semicolons, shortened his sentences and struck out phrases which merely linked one sentence with another or marked a transition from one thought to another, a task that should not be left to the reader. In the fourth draft he gave special attention to the order of sentences and to the repetition of the same word; he looked on the recurrence as a warning to rewrite the sentence, not to search for a synonym. The fifth draft saw the disappearance of adjectives, for he was of the opinion of Voltaire that, though the adjective might agree with the substantive in gender, number and case, often it did not suit it. From the sixth draft he chipped away what he called the pastry, all that was adventitious and redundant, and over the seventh draft he passed the plane, for, he said, a good writer is like a good cabinet maker—he planes his phrases smooth.' "

Trelease and Yule,[2] in their practical book entitled "Preparation of Scientific and Technical Papers," suggest 10 revising processes, pointing out, however, that it is necessary to recopy the pages only after they have become crowded with corrections. Their first revision

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[2] Trelease, S. F., and Yule, E. S.: Preparation of Scientific and Technical Papers, ed. 3, Baltimore, The Williams & Wilkins Co., 1937.

is for consistency, involving the removal of irrelevant material and the avoidance of contradictions. Next, the structure of individual sentences is improved and it is emphasized that few sentences should have more than 30 words The punctuation should be simple. Revisions are then made for clearness of sentences and paragraphs to avoid repetition to justify the use of conjunctions, interjections and relative pronouns, to make certain that the article reads smoothly to correct punctuation to make the use of capitals and italics and the subheadings consistent, and, last, to make certain that statements are accurate.

An article appearing in a state medical journal apparently was published without revision, it presented most of the faults mentioned in this book, as well as many of those referred to in elementary books on grammar and rhetoric. The entire essay comprised 2,800 words. It was divided into 12 paragraphs, and contained only 33 sentences—an average of 84 words to a sentence. One paragraph, consisting of a single sentence of 208 words, read

> We know of course, that a few of the state societies have recently taken it upon themselves to initiate a campaign intended to counteract in some measure the ravages of quackery and such an effort is a very praiseworthy one and we bespeak for it a considerable degree of success, and it behooves us as members of the societies to assist in every possible manner the furtherance of this effort, and also seek to enlist the aid of those of the profession who are not yet *members of our societies, that a united front may be presented in the fight* as this is essential to the success of the campaign and we must realize further that such a united effort does not at all excuse an individual effort but rather makes this more obligatory and should remember also, that in this as in all other campaigns of any character that we will get only as much out of it as we put into it, so there must be no shirking of our obvious duty in this regard.

The first step in revision included the bracketing of unnecessary words and the breaking up of the long sentences into several short ones. The revised paragraph is shown in figure 35

When the paragraph was copied after revision, it appeared as follows

> A few of the state societies have recently initiated campaigns to counteract the ravages of quackery Such an effort is praiseworthy and it behooves members of the societies to assist in every possible manner They should also seek to enlist the aid of *physicians who are not yet members of the societies,*

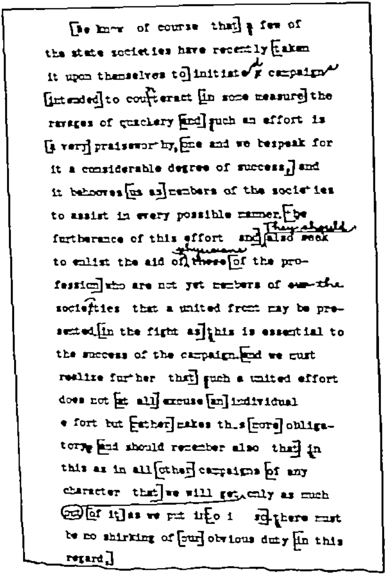

[We know of course that] a few of
the state societies have recently [taken
it upon themselves to] initiate a campaign
[intended] to counteract [in some measure] the
ravages of quackery [and] such an effort is
[a very] praiseworthy [one and we bespeak for
it a considerable degree of success,] and
it behooves [us as] members of the societies
to assist in every possible manner. [The
furtherance of this effort and] [also] seek
to enlist the aid of those [of the pro-
fession] who are not yet members of our the
societies that a united front may be pre-
sented [in the fight as] this is essential to
the success of the campaign. [and we must
realize further that] such a united effort
does not [at all] excuse [an] individual
effort but [rather] makes this [more] obliga-
tory. [and should remember also that] in
this as in all [other] campaigns [of any
character that] we will get only as much
(out) [of it] as we put in [to i so] there must
be no shirking of [our] obvious duty [in this
regard.]

FIG. 35 The first step in revision.

that a united front may be presented. This is essential to the success of the campaign Such a united effort does not excuse individual effort but makes this obligatory In this as in all campaigns we will get out only as much as we put in There must be no shirking of obvious duty

With further revisions for punctuation, diction and emphatic style, the paragraph appeared as in figure 36

A few ~~of the~~ state societies have recently initiated praiseworthy campaigns to counteract the ravages of quackery ~~Such an effort is praiseworthy, and~~ It behooves the members ~~of the societies~~ to assist in every possible manner They should ~~also~~ seek to enlist the aid of physicians who are not yet members, ~~of the societies,~~ that a united front may be presented This is essential to the success of the campaign ~~Such a~~ United effort, however, does not excuse one from individual effort but makes ~~this~~ it obligatory In this, as in all campaigns, ~~we~~ one will get out only as much as ~~we put~~ one puts in There must be no shirking of obvious duty

FIG 36 The appearance of the material in figure 35 after further revision.

Here, then is the paragraph as finally revised probably still susceptible of improvement in diction

A few state societies have recently initiated praiseworthy campaigns to counteract the ravages of quackery It behooves the members to assist in every possible manner They should seek to enlist the aid of physicians who are not yet members, that a united front may be presented This is essential to the success of the campaign. United effort, however does not excuse one from individual effort but makes it obligatory In this, as in all campaigns, one will get out only as much as one puts in There must be no shirking of obvious duty

16

Proofreading

Nearly all periodicals submit proof to the author prior to publication It is then his privilege and duty to scrutinize the proof—whether in galley or page form—to make certain that the printed article which will appear under his name is entirely to his satisfaction. When an article has been prepared by more than one author proof will be sent to the one whose name appears first, in the absence of written directions to the contrary On special request, proof may be sent to each of the several authors.

CORRECTIONS

Reading proof will be facilitated if the following rules are observed

1 Read the proof against the manuscript, checking carefully for omissions, errors in spelling and fact and other deviations from copy

2 Never erase or alter any proofreader s marks made on proof.

3 Answer all queries written on proof Queries are made in the interest of accuracy and not in a spirit of criticism. (Sometimes they are set in large type, called "catchlines," intended to catch the author's attention.) Cross out the question mark or draw a line through the catchline and correct the questioned portion if it is wrong. It is unsatisfactory merely to write "O.K." in the margin, for this may not answer the question, leaving the proofreader in doubt as to whether the original text or the suggested change is O.K.

4 Make all corrections legibly in the margin of the proof—never inside the type page or on the manuscript. Do not draw lines from the point at which corrections are to be made into the margin of the proof for they create confusion, Instead, mark your corrections in the margin parallel to the line of type in which the correction is to appear

PARAGRAPHING

¶	Make a new paragraph.
no ¶, or run in	No paragraph.

INSERTION AND DELETION

the	Insert word letter or punctuation written in the margin
Out see copy	Insert matter omitted
^	indicates where insertion is to be made.
ꝺ	Delete, or take out a line or word.

SPACING

#	Insert space between words letters or lines.
⁀	Close up or take out space.
	Take out letter and close up.
	Close up, but leave some space.
Center	Put in middle of page or line.

POSITION

9	Turn to proper position.
⊏	Move to left.
⊐	Move to right.
⊔	Move down a letter character or word.
⊓	Move up a letter character or word.
□	Indent one em.
=	Straighten a crooked line.
‖	Straighten lateral margin of printing
tr	Transpose of order words or letters.
tr #	Transpose space.
✓✓	Correct uneven spacing
space out	Spread words farther apart.
run over	Run over to next line. (A two letter division is not allowed)
run back	Run back to preceding line. (Such a division is not allowed)

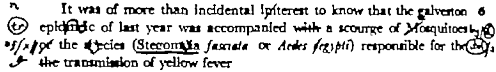
Signs Used in Correcting Proof

PUNCTUATION

Sign	Meaning
⊙	Period.
^	Comma.
✓	Apostrophe.
	Colon.
	Semicolon.
	Quotation marks.
	Hyphen ( )
	En dash (–)
	Em dash (—)
	Two em dash (——)
	Sign of equality (=)
(/)	Parentheses.
[/]	Brackets.

MISCELLANEOUS

Sign	Meaning
	Push down a space that prints.
(?)	Question to author. Is this right?
stet	Allow to stand as it is.
lc	RESET in lower case.
caps	Reset in capitals.
uc	Use a capital.
small caps	Reset in small capitals.
rom	Reset in roman.
ital	Reset in italic.
bf	Reset in bold face.
wf	Wrong font (wrong size or style)
	Superior figure.
	Inferior figure.
X	Type is broken or imperfect.
≡	under a letter or a word indicates capitals.
=	SMALL CAPITALS.
—	*Italics*
~~	**Bold face.**
	BOLD FACE CAPITALS.
	BOLD FACE SMALL CAPITALS.
	Bold face italics.



It was of more than incidental interest to know that the Galveston epidemic of last year was accompanied by a scourge of mosquitoes of the species (*Stegomyia fasciata* or *Aedes aegypti*) responsible for the transmission of yellow fever

FIG 37 Above is a paragraph as corrected by the proofreader below it appears the same paragraph after the corrections have been made.

5 Put a caret inside the type page at the point where an insertion is to go but do not put a caret in the margin under the material to be inserted

6 Use ink of a color different from that already used on the proof This is to differentiate between your changes and those made by the printer

7 Use the universally accepted proofreader s signs and symbols as illustrated on pages 182 and 183

8 When making changes in proof whenever possible provide space for new words by omitting the same number of letters in closely adjacent material This will result in a considerable saving in the cost of resetting type.

9 Retype extensive changes on a full-sized sheet of paper identify the sheet with the galley or page number and paste it firmly to the margin of the proof Do not use clips or pins.

10 When inserting new material on proof be sure that the new matter conforms to the style of spelling punctuation, etc. used in the material already set.

11 Cross out all material to be eliminated

12 Indicate in the margin where illustrations are to be inserted in the proof (The publisher however reserves the right to digress from your choice if it is unsuitable because of mechanical or economic considerations.)

13 Should you be asked (*a*) to supply material to add a line or (*b*) to delete material to eliminate a line, do so carefully in order that the pages may be of the proper depth.

14 Remember that if the type has been set on the linotype machine, a change of as little as one letter or mark of punctuation in a line will necessitate the resetting of the entire line.

15 Indicate on galley proof what the running head should be if the title of the article is too long to be accommodated.

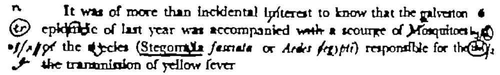
16. Never cut master proof apart. If dummying is requested, an extra set will be supplied with instructions.

17 Mark your file set of proof exactly like the master set.

18 Return the printer's master set promptly together with the manuscript. Meeting scheduled publication dates depends partially on your cooperation in this respect.

19 Use your duplicate set of page proofs to make the index for a book.

The author should remember that the proof has been sent to him for *reading* not rewriting Consciousness of this fact will save considerable expense which is often wholly or partially chargeable to the author


It was of more than incidental interest to know that the galveston epidemic of last year was accompanied with a scourge of Mosquitoes of the species (Stegomyia *fasciata* or *Aedes aegypti*) responsible for the transmission of yellow fever

It was of more than incidental interest to know that the Galveston epidemic of last year was accompanied by a scourge of mosquitoes of the species (*Stegomyia fasciata* or *Aedes aegypti*) responsible for the transmission of yellow fever

FIG 37 Above is a paragraph as corrected by the proofreader below it appears the same paragraph after the corrections have been made.

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13 Should you be asked (*a*) to supply material to add a line or (*b*) to delete material to eliminate a line, do so carefully in order that the pages may be of the proper depth.

"gestation" and "gravidity " (Later he will choose one of these words under which to group the page references, treating the other words as cross references. See pages 188 and 189)

As a general rule, to be proportionate in length, an index should contain about three times as many entries as there are pages of text indexed—in other words, each page of text will contribute about three entries to the index. By no means is this rule of thumb to be construed as obligatory it is offered merely as a guide to the author who is endeavoring to build a functional index which tells the story but is free of "padding "

After laying this groundwork, the author is ready for the actual writing of the items which will comprise the index.

WRITING THE ENTRIES

The author may write the entries in longhand, or he may type them (see page 193) In either case, work will be facilitated by using a continuous roll of paper tape such as is used in cash registers. It is of a weight conducive to easy handling and later can be cut apart into separate entries for rearrangement into alphabetical order

Another useful device is regulation size 8½ by 11 inch paper perforated into some 10 parts. Each entry may be written or typed on one of the sections and later the whole can easily be separated into its parts.

Cards measuring 3 by 5 inches are used frequently These are also available now in rolls, the use of which does away with the inconvenience of inserting each card into the typewriter individually

The author should decide what is the key word in the phrase previously underscored in red—the word most likely to be sought by the reader Usually the key word will be a noun. Generally speaking an index should be composed of noun entries—both main entries and subentries—and not of adjective entries unless (a) such adjectives possess a particular significance (as "catalytic reagents") or (b) the noun is vague (as "hereditary conditions")

Example Suppose on page 80 the phrase "external carotid artery" has been underlined. Since the key word is "artery" the entry should be written artery carotid, external, 80. (The inversion of the words "external carotid"

Indexing

In compiling an index, the author should remember that he is constructing a tool intended for one purpose only: to enable the reader *quickly and easily* to find the subject he is interested in. The author already knows the subject matter of his book, but too often he forgets that the reader must depend on a more or less imperfect knowledge of what to seek, therefore index entries should be couched in language understandable to the reader. For example, should the author index all entries pertaining to that subject under the words "Hansen's disease," forgetting the commonly used "leprosy," a reader who may be unfamiliar with the former term may think the subject of leprosy is not discussed.

ORGANIZING THE MATERIAL

Usually the author will receive a duplicate set of page proofs, simultaneously with the printer's master set. Before returning the printer's set, he should incorporate every mark thereon into his own set of pages, so that he can retain an exact copy of the proof as released to the printer. He should pay particular attention to any marks indicating transposition of material from one page to another, for this will affect the subsequent pagination and, in turn, the index.

The first step in compiling an index is to check all the pages for proper numerical sequence. Then, using a colored crayon pencil (preferably red), the author should underscore those words, phrases and subjects he wishes to appear in the index. This procedure should be followed throughout the entire page proof. He need not restrict himself to underlining items in the text only, but may—and should—include center heads and side heads as well as chapter titles. Simultaneously, as he progresses through the page proof, he should note in the margin of the page any cross references that should be accommodated in the writing of the index entries. For example, if "pregnancy" is under discussion, he should write down the synonyms

"gestation" and "gravidity." (Later he will choose one of these words under which to group the page references, treating the other words as cross references. See pages 188 and 189.)

As a general rule, to be proportionate in length, an index should contain about three times as many entries as there are pages of text indexed—in other words, each page of text will contribute about three entries to the index. By no means is this rule of thumb to be construed as obligatory: it is offered merely as a guide to the author who is endeavoring to build a functional index which tells the story but is free of "padding."

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Example: Suppose on page 80 the phrase "external carotid artery" has been underlined. Since the key word is "artery," the entry should be written "artery, carotid, external, 80." (The inversion of the words "external carotid"

permits the later insertion of other subentries under the noun "artery" such as "internal carotid," "anterior cerebral, etc.)

If a subject can be discussed under several key words, the author should enter it under all such words, either with the page reference or with a cross reference to the item he considers most important. Examples follow

Bronchopneumonia, 87
  penicillin in, 88

and also

Penicillin, 102
  in bronchopneumonia, 88

Gestation (*see* Pregnancy)
Gravidity (*see* Pregnancy)
Pregnancy 206–243

Since each entry and subentry is written on a separate card or slip, it follows that full information must be given for each one as they are not in any order when being written For example, since the entry muscles may prove to have more than one subentry, the identifying word "muscles must appear on every subentry even though it will be eliminated in the final editing (see page 191)

Likewise in indexing, the use of verbs and phrases should be avoided in favor of nouns Examples follow

Avoid Streptomycin, administering, 102
Avoid Streptomycin, how to administer 102
Use Streptomycin, administration of 102

Avoid Antibiotics, and their use in combating infection 76–110
Use Antibiotics, use of to combat infection, 76–110

When writing the entries, the indexer should try to maintain a uniform style throughout, for an ounce of care in this respect will save a pound of work in the final over all editing of the completed index manuscript He should write inclusive page folios or numbers in full e.g., *358–362 (not 358–62), 26–28 (not 26–8)* He should also write all entries exactly as they appear in the pages of text, paying particular attention to hyphenation and the spelling of proper names and foreign words.

REFERENCES TO ILLUSTRATIONS

Index references to illustrations may be differentiated from those pertaining to the text proper by underscoring the page number or

folio. (These underscored folios then may be set in either italics or boldface according to the preference of the publisher.) If this plan is adopted, a line should appear on page 1 of the index to the effect that "Page numbers set in *italics* [or boldface] refer to illustrations thereon." Examples follow:

Morbidity *78*, 103
Morbidity **78**, 103

REFERENCES TO FOOTNOTES AND TABLES

Index references to footnotes or tables may be expressed by using a lower case "n" (for footnote) or "t" (for table) closed up to the page folio. Examples follow:

Stomatitis, 39n, 42
Strabismus, 13, 26t

CROSS REFERENCES

For easy readability the following style is suggested for simple cross references where no folio is linked to the entry:

Fever 34
  enteric (*see* Typhoid)
Oxytocin (*see* Pitocin)

When an entry pertains not only to a page in the book, but also to another entry the following style is suggested:

Riboflavin, 262
  (*See also* Vitamin B_2)

ALPHABETIZING THE ENTRIES

The first step in alphabetizing is to arrange the entries into 26 groups—one for each letter of the alphabet. Then, taking the letter A, and later proceeding in like manner with the other letters of the alphabet, the author should arrange the many main entries, subentries and sub-subentries into alphabetical order for the time being disregarding an apparent repetition of many of the key words. (This situation will be remedied in the final editing—see page 191.)

Words which are items in themselves should precede words con-

permits the later insertion of other subentries under the noun "artery" such as internal carotid anterior cerebral," etc.)

If a subject can be discussed under several key words, the author should enter it under all such words, either with the page reference or with a cross reference to the item he considers most important. Examples follow

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  penicillin in, 88

Gestation (*see* Pregnancy)
Gravidity (*see* Pregnancy)
Pregnancy 206–243

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Use Antibiotics, use of to combat infection 76–110

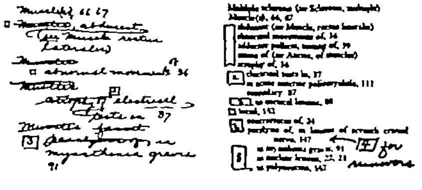
When writing the entries, the indexer should try to maintain a uniform style throughout, for an ounce of care in this respect will save a pound of work in the final over all editing of the completed index manuscript. He should write inclusive page folios or numbers in full e.g 358–362 (not 358–62) 26–28 (not 26–8) He should also write all entries exactly as they appear in the pages of text, paying particular attention to hyphenation and the spelling of proper names and foreign words.

REFERENCES TO ILLUSTRATIONS

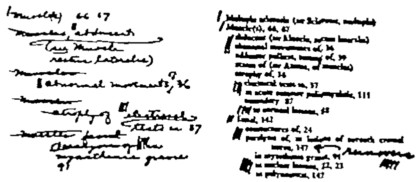
Index references to illustrations may be differentiated from those pertaining to the text proper by underscoring the page number or

to see that a consistent style of capitalization and punctuation has been used.

At this time, as illustrated below he should cross out the superfluous information necessarily included when the various entries were being written. Simultaneously with this crossing out of excess material he should also indicate the proper indention of the various subentries and sub-subentries. One way is to use the conventional em marks as follows:



Another way is to employ a series of colored crayon pencil strokes before each entry one stroke indicating "set flush," two strokes indicating "set one em indent," three strokes indicating "set two ems indent," etc. Lines that run over to a second line (called runovers, overruns or turnovers) should be marked to be indented one em more than the most subordinate entry



taining that stem (e.g., "milk" and all its subentries should precede "milking" even though the subentries of "milk" start with a letter in the alphabet succeeding "i"):

> Milk sugar, 56
> Milking, 58

Single word entries should precede compound word entries containing the same word, as follows:

> Milk, testing, 56
> Milk proteins, 108

Following is an example combining the above illustrations:

> Milk, testing, 56
>   turbidity, 54
> *Milk proteins, 108*
> Milk sugar, 76
> Milking, 58
> Milky Way, 98

With the exception of combining forms, hyphenated words and proper names should be treated as separate words, as follows:

> Brown, Xavier, 22
> Brown-Williams, Henry, 84
> *Browne, F. T., 100*

> Cardioneurosis, 95
> *Cardio-omentopexy, 71* } *combining forms treated as one word*
> Cardiopath, defined, 53

> Gram-molecule, 89
> Grammole, defined, 65

A proper name should precede all terms beginning with that name and the 's in the possessive case should be ignored in alphabetizing eponymic entries, as follows:

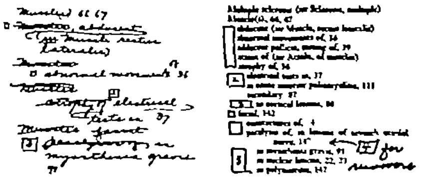
> Dalton, Peter, 23
> Dalton's law, 10
> Dalton phenomenon, 82

EDITING THE ENTRIES

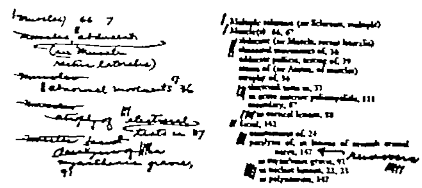
After arranging the various items in alphabetical order and numbering them in sequence, the author should read the entire index

to see that a consistent style of capitalization and punctuation has been used.

At this time, as illustrated below he should cross out the superfluous information necessarily included when the various entries were being written. Simultaneously with this crossing out of excess material he should also indicate the proper indention of the various subentries and sub-subentries. One way is to use the conventional em marks as follows.



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With the exception of combining forms, hyphenated words and proper names should be treated as separate words, as follows

> Brown, Xavier 22
> *Brown Williams, Henry,* 84
> Browne, F T., 100
>
> Cardioneurosis, 95
> Cardio-omentopexy 71 } combining forms treated as one word
> Cardiopath, defined 53
>
> Gram-molecule, 89
> Grammole, defined, 65

A proper name should precede all terms beginning with that name and the *s* in the possessive case should be ignored in alphabetizing eponymic entries, as follows

> Dalton, Peter 23
> Dalton's *law* 10
> Dalton phenomenon, 82

EDITING THE ENTRIES

After arranging the various items in alphabetical order and numbering them in sequence, *the author should read the entire index*

TYPING THE INDEX

After the index has been completely edited, the cards or slips may be submitted for printing or they may be typed in sequence on regular size 8½ by 11 inch paper thus reducing the over-all bulk of the index manuscript. Since errors may creep in during the new typing, the new manuscript must again be read critically comparing it with the original cards

The typing should be double spaced, and the indentions of the various subentries should be kept uniform.

In both illustrations, representative examples are shown written in longhand, together with their accompanying counterparts as typed (Obviously these illustrative index samples are the product of the typesetting machine, but the principle remains the same.) Which ever plan is followed, it should be done carefully

Should there be too few proper names to make a separate "Index of Authors, such names may be incorporated in the "Subject Index" but they may be set in capitals and small capitals to distinguish them from the subject entries. To avoid confusion, all proper names should bear identifying initials or the Christian name if available. For example, "Smith, 452' in an index containing references to other people named Smith would prove of little value to the reader Smith, Henry, 452 or Smith, R W 87" is preferable.

In the final editing the indexer should consolidate on one slip or card in logical numerical sequence, all entries pertaining to the same key word For example, if the subject acromegaly' is discussed in three places in the book (on pages 12, 34 and 56–62, say), in alphabetizing the indexer will have filed these three separate cards in numerical order These separate entries should now be converted into one card The result will read Acromegaly 12 34 56–62.

On the other hand if two or more entries are composed of compound names containing the same preceding modifiers, the compound name should be considered as the main entry and repeated in full Examples follow

Absolute alcohol 240
Absolute ether 309
Aniline, 34
  chart of reactions, 36
  salts of 38
Aniline black, 40
Aniline blue, 41

Finally the indexer should check all cross references to eliminate those so-called dead-end or 'runaround items that chase the reader fruitlessly from one to another to no purpose. Examples follow

Plessimeter (see Pleximeter)
Pleximeter (see Plessimeter)

Acta endocrinol.—Acta endocrinologica. Einar Munksgaard, Copenhagen.

Acta gastro-enterol.belg.—Acta gastro-enterologica belgica. Brussels.

Acta genet.med.et gemel.—Acta geneticae medicae et gemellologiae. Rome.

Acta gerontol.—Acta gerontologica. Milan.

Acta haemat.—Acta haematologica. S. Karger. Basel, Switzerland.

Acta helvet.—Acta helvetica physico-mathematico-botanico-medica. Basel, Switzerland.

Acta leidensia scholae med.trop.—Acta leidensia scholae medicinae tropicae. Instituut voor Tropische Geneeskunde, Leiden, Netherlands.

Acta med.Acad.sc.hung.—Acta medica Academiae scientiarum hungaricae. "Kultura" Foreign Trade Company for Books and Newspapers, Budapest.

Acta med.ital.—Acta medica italica di malattie infettive e parassitarie. Ospedale Gesù e Maria, Naples.

Acta med.iugoslav.—Acta medica iugoslavica. Izdavac Medicinska knjiga, Belgrade, Yugoslavia.

Acta med.philippina—Acta medica philippina. College of Medicine. University of the Philippines, Manila.

Acta med.scandinav.—Acta medica scandinavica. [Continuation of Nord.med.Ark.] Stockholm.

Acta morphol.—Acta morphologica. Magyar Tudományos Akadémia, Budapest.

Acta neurochir.—Acta neurochirurgica. Springer Verlag, Vienna.

Acta neurol.et psychiat.belg.—Acta neurologica et psychiatrica belgica. Brussels.

Acta neuroveg.—Acta neurovegetativa. Springer Verlag. Vienna.

Acta obst.et gynec.scandinav.—Acta obstetrica et gynecologica scandinavica. Prof. A. Westman, Karolinska sjukhuset, Stockholm.

Acta odont.scandinav.—Acta odontologica scandinavica. P. A. Norstedt & Söner Stockholm.

Acta ophth.—Acta ophthalmologica. Einar Munksgaard, Copenhagen.

Acta orthop.scandinav.—Acta orthopaedica scandinavica. Einar Munksgaard, Copenhagen.

Acta ortop.-traumatol.ibér.—Acta ortopédica-traumatológica ibérica. [Continuation of Cir.ap.locom.] Madrid.

Acta oto-laryng.—Acta oto-laryngologica. Stockholm.

Acta oto-laryng.orient.—Acta oto-laryngologica orientalia. P.O.B. 492, Jerusalem.

Acta oto-rhino-laryng.belg.—Acta oto-rhino-laryngologica belgica. Dr. P. Hennebert, rue Mercelis, 86, Brussels.

Acta paediat.—Acta paediatrica. Almqvist & Wiksells, Upsala, Sweden.

Acta paediat.belg.—Acta paediatrica belgica. Brussels.

Acta path.et microbiol.scandinav.—Acta pathologica et microbiologica scandinavica. Einar Munksgaard, Copenhagen.

Acta pharmacol.et toxicol.—Acta pharmacologica et toxicologica. Einar Munksgaard, Copenhagen.

Acta physiol.latino-am.—Acta physiologica latino-americana. Buenos Aires.

Acta physiol.et pharmacol.neerl.—Acta physiologica et pharmacologica neerlandica. North-Holland Publishing Co. Amsterdam.

Acta physiol.scandinav.—Acta physiologica scandinavica. P. A. Norstedt & Söner Stockholm.

Acta psychiat.et neurol.: [Continued as Acta psychiat.et neurol.scandinav. Some supplements use old title.]

18

Abbreviations of Names of Periodicals

The following list contains the names of most recognized medical periodicals published throughout the world It gives (1) the abbreviation, (2) the full name and (3) the place of publication (when not obvious from the title) To save space, the name of the country has been omitted after well known cities which are mentioned frequently

A.M.A.Am.J.Dis.Child.—A.M.A. American Journal of Diseases of Children. American Medical Association, Chicago

A.M.A.Arch.Dermat.—A.M.A. Archives of Dermatology [Continuation of Arch. Dermat.&Syph.] American Medical Association. Chicago.

A.M.A.Arch.Indust.H.—A.M.A. Archives of Industrial Health. [Continuation of A.M.A. Arch.Indust.Hyg] Chicago.

A.M.A.Arch.Int.Med —A.M.A. Archives of Internal Medicine Chicago.

A.M.A.Arch.Neurol.&Psychiat.—A.M.A. Archives of Neurology and Psychiatry Chicago

A.M.A.Arch Ophth.—A.M.A. Archives of Ophthalmology Chicago.

A.M.A.Arch.Otolaryng —A.M A. Archives of Otolaryngology Chicago.

A.M.A.Arch.Path.—A.M.A. Archives of Pathology Chicago.

A.M.A.Arch.Surg —A.M.A. Archives of Surgery Chicago.

A.Res.Nerv.& Ment.Dis.Proc.—Association for Research in Nervous and Mental Disease. Proceedings, Williams & Wilkins Co. Baltimore.

Acad.argent.cir bol.y trab : See Bol.y trab Acad.argent.cir

Acción méd.—Acción médica. Buenos Aires.

Acta Acad.nat.curios.—Acta physico-medica Academiae Caesareae naturae curiosorum exhibentia ephemerides. Nuremberg Germany

Acta allergol.—Acta allergologica. Einar Munksgaard, Copenhagen.

Acta anaesth.belg —Acta anaesthesiologica belgica. [Suppl. to Acta chirurgica belgica.] Brussels.

Acta anat.—Acta anatomica. S. Karger Basel, Switzerland.

Acta cardiol.—Acta cardiologica. Société belge de cardiologie, Brussels

Acta chir.belg —Acta chirurgica belgica. [Suppl. Acta anaesthesiologica belgica] Brussels.

Acta chir.scandinav —Acta chirurgica scandinavica. [Continuation of Nord.med.Ark] P A. Norstedt, Stockholm.

Acta clin.belg —Acta clinica belgica. Brussels.

Acta dermat.-venereol.—Acta dermato-venereologica. Stockholm.

Am.Indust.Hyg.A.Quart.—American Industrial Hygiene Association Quarterly. Chicago.

Am.J.Anat.—American Journal of Anatomy. Wistar Institute, Philadelphia.

Am.J.Clin.Path.—American Journal of Clinical Pathology [Including] Technical Section. Williams & Wilkins Co., Baltimore.

Am.J.Digest.Dis.—American Journal of Digestive Diseases. Sandfield Publishing Co., Fort Wayne, Ind.

Am.J.Dis.Child.: See A.M.A.Am.J.Dis.Child.

Am.J.Electroth.& Radiol.—American Journal of Electro-therapeutics and Radiology. [Continued as Phys.Therapy Rev.]

Am.J.Human Genet.—American Journal of Human Genetics. Williams & Wilkins Co., Baltimore.

Am.J.Hyg.—American Journal of Hygiene. D. Bodian, Baltimore.

Am.J.M.Sc.—American Journal of the Medical Sciences. Lea & Febiger. Philadelphia.

Am.J.Med.—American Journal of Medicine. New York.

Am.J.Ment.Deficiency—American Journal of Mental Deficiency. Albany, N.Y.

Am.J.Nursing—American Journal of Nursing. New York.

Am.J.Obst.& Gynec.—American Journal of Obstetrics and Gynecology. C. V. Mosby Co., St. Louis.

Am.J.Ophth.—American Journal of Ophthalmology. Ophthalmic Publishing Co., Chicago.

Am.J.Orthodontics—American Journal of Orthodontics. C. V. Mosby Co. St. Louis.

Am.J.Orthopsychiat.—American Journal of Orthopsychiatry. New York.

Am.J.Path.—American Journal of Pathology. University of Michigan, Ann Arbor.

Am.J.Pharm.—The American Journal of Pharmacy and the Sciences Supporting Public Health. Philadelphia College of Pharmacy and Science, Philadelphia.

Am.J.Phys.Anthropol.—American Journal of Physical Anthropology. Wistar Institute, Philadelphia.

Am.J.Phys.Med.—American Journal of Physical Medicine. Williams & Wilkins Co., Baltimore.

Am.J.Physiol.—American Journal of Physiology. American Physiological Society. Washington, D.C.

Am.J.Physiol.Optics—American Journal of Physiological Optics. Southbridge, Mass.

Am.J.Police Sc.—American Journal of Police Science. Chicago.

Am.J.Psychiat.—The American Journal of Psychiatry. Baltimore.

Am.J.Psychotherapy—American Journal of Psychotherapy. New York.

Am.J.Pub.Health—American Journal of Public Health and the Nation's Health. American Public Health Association, New York.

Am.J.Roentgenol.—The American Journal of Roentgenology, Radium Therapy and Nuclear Medicine. Charles C Thomas, Springfield, Ill.

Am.J.School Hyg.—American Journal of School Hygiene. Worcester, Mass.

Am.J.Surg.—American Journal of Surgery. New York.

Am.J.Syph.—American Journal of Syphilis, Gonorrhea and Venereal Diseases. C. V. Mosby Co. St. Louis.

Am.J.Trop.Med.—American Journal of Tropical Medicine and Hygiene. Williams & Wilkins Co., Baltimore.

Am.J.Vet.Res.—American Journal of Veterinary Research. Chicago.

Am.Med.—American Medicine. New York.

Acta psychiat.et neurol.scandinav—Acta psychiatrica et neurologica scandinavica. Einar Munksgaard, Copenhagen

Acta radiol.—Acta radiologica. Stockholm.

Acta scholae med.univ.Kioto—Acta scholae medicinalis universitatis in Kioto. Kyoto University, Japan.

Acta Soc.med.upsalien—Acta Societatis medicorum upsaliensis. Almqvist & Wiksells, Upsala, Sweden

Acta tuberc.belg—Acta tuberculosea belgica. (Continuation of Rev.belge tuberc.) Brussels.

Acta tuberc.scandinav—Acta tuberculosea scandinavica. Einar Munksgaard, Copenhagen.

Acta Unio internat.contra cancrum—Acta Unio internationalis contra cancrum. Louvain, Belgium.

Actas dermo-sif.—Actas dermo-sifiliográficas. Madrid.

Actas luso-españ.neurol y psiquiat.—Actas luso-españolas de neurología y psiquiatría. Madrid.

Actas primera conf.latino-am.neurol.psiquiat.y med.leg—Actas de la primera conferencia latino-americana de neurología, psiquiatría y medicina legal. Buenos Aires.

Actinoterapia—Actinoterapia. Naples, Italy

Actualité méd.—Actualité médicale. Paris.

Advances Enzymol.—Advances in Enzymology and Related Subjects. Interscience Publishers, Inc., New York.

Advances Int.Med.—Advances in Internal Medicine. Interscience Publishers, Inc., New York.

Aerztl.: See Ärztl.

Afrique franç.chir—L'Afrique française chirurgicale. Algiers.

Akad.Iatr—Akadimaiki Iatriki. Athens

Alexander Blain Hosp.Bull.—Alexander Blain Hospital Bulletin. Detroit.

Algérie méd.—L'Algérie médicale. Algiers.

Alienist & Neurol.—Alienist and Neurologist. St. Louis.

Alkoholfrage—Die Alkoholfrage. Berlin.

Allg balneol.Ztg—Allgemeine balneologische Zeitung. Prague, Czechoslovakia.

Allg.med.Centr.-Ztg—Allgemeine medizinische Central Zeitung. (Continuation of Berl.med.Centr. Ztg.) Berlin

Allg.med.Ztg—Allgemeine medizinische Zeitung mit Berücksichtigung des Neuesten und Interessantesten der allgemeinen Naturkunde. Altenburg, Germany

Allg.mil.-ärztl.Ztg—Allgemeine militär-ärztliche Zeitung. Vienna

Allg.statist.Arch—Allgemeines statistisches Archiv. Jena, Germany

Allg Wien.med.Ztg—Allgemeine Wiener medizinische Zeitung. Vienna.

Allg.Ztg Chir—Allgemeine Zeitung für Chirurgie, innere Heilkunde und ihre Hülfswissenschaften. Augsburg, Germany

Allg.Ztg.Mil.-Aerzte—Allgemeine Zeitung fur Militär-Aerzte. Brunswick, Germany

Allm.svenska läk-tidning—Allmänna svenska läkartidningen. Stockholm.

Am.Ann.Deaf—American Annals of the Deaf. Washington, D.C.

Am.Anthrop—American Anthropologist. Washington, D.C.

Am.Diabetes A.,Proc.: See Proc.Am.Diabetes A.

Am.Druggist—American Druggist. New York

Am.Heart J—American Heart Journal. C. V. Mosby Co., St. Louis.

Am.Indust.Hyg.A.Quart.—American Industrial Hygiene Association Quarterly Chicago.

Am.J.Anat.—American Journal of Anatomy Wistar Institute Philadelphia.

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Am.J.Path.—American Journal of Pathology University of Michigan, Ann Arbor

Am.J.Pharm.—The American Journal of Pharmacy and the Sciences Supporting Public Health Philadelphia College of Pharmacy and Science Philadelphia.

Am.J.Phys.Anthropol.—American Journal of Physical Anthropology Wistar Institute, Philadelphia.

Am.J.Phys.Med.—American Journal of Physical Medicine. Williams & Wilkins Co., Baltimore

Am.J.Physiol.—American Journal of Physiology American Physiological Society Washington, D.C.

Am.J.Physiol.Optics—American Journal of Physiological Optics. Southbridge, Mass.

Am.J.Police Sc.—American Journal of Police Science Chicago.

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Am.J.School Hyg.—American Journal of School Hygiene. Worcester Mass.

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Am.J.Trop.Med.—American Journal of Tropical Medicine and Hygiene. Williams & Wilkins Co., Baltimore.

Am.J.Vet.Res.—American Journal of Veterinary Research. Chicago.

Am.Med.—American Medicine. New York.

Am.Pract.& Digest Treat.—American Practitioner and Digest of Treatment. J. B. Lippincott Co., Philadelphia.

Am.Rev.Soviet Med. Ceased publication Oct. 1948

Am.Rev Tuberc.—American Review of Tuberculosis (including Spanish summaries). National Tuberculosis Association, New York.

Am.Surgeon—American Surgeon. Williams & Wilkins Co., Baltimore

An.Acad.med.Medellín—Anales de la Academia de medicina de Medellín. Bedout, Medellín, Colombia.

An.Asoc.quím.argent.—Anales de la Asociación química argentina. Buenos Aires.

An.brasil.dermat.e sif.—Anais brasileiros de dermatologia e sifilografia. Rio de Janeiro.

An.brasil.ginec.—Anais brasileiros de ginecologia. Rio de Janeiro.

An. Casa salud Valdecilla—Anales de la Casa de salud Valdecilla, Instituto médico de postgraduados. Santander Spain.

An.Cáted.pat.y clin.tuberc.—Anales de la *Cátedra de patología y clínica de la tuberculosis*. Buenos Aires.

An.cien.méd.—Anales de ciencias médicas. Madrid.

An.cir.—Anales de cirugía. Rosario, Argentina.

An.Fac.med.Bahia—Anais da Faculdade de medicina da Bahia. Salvador Bahia, Brazil.

An.Fac.med.Montevideo—Anales de la Facultad de medicina de Montevideo. Montevideo, Uruguay

An.hig púb—Anales de higiene pública y medicina legal. Buenos Aires.

An.Fac.med.Univ.São Paulo—Anais da Faculdade de medicina da Universidade de São Paulo. São Paulo, Brazil.

An.Hosp.Santa Cruz y San Pablo—Anales del Hospital de la Santa Cruz y San Pablo. Barcelona.

An.Inst.farm.españ.—Anales del instituto de farmacología española. Fundación Marqués de Urquijo, Madrid.

An.Inst.med.exper.—Anales del Instituto de medicina experimental. Universidad nacional de Buenos Aires.

An.Inst.med.exper Valencia—Anales del Instituto de medicina experimental de Valencia. Valencia, Spain. (Discontinued Jan. 1947.)

An.Inst.med.trop.—Anais do Instituto de medicina tropical. Lisbon.

An.Inst.modelo clín.méd.—Anales del Instituto modelo de clínica médica. Universidad nacional de Buenos Aires.

An.med., Barcelona—Anales de medicina, Boletín mensual de la Academia de ciencias *médicas-segunda época. Barcelona, Spain.*

An.méd.Concepción—Anales medicos de Concepción. Sociedad médica, Concepción, Chile.

An.med.púb.—*Anales de medicina pública.* Santa Fe Argentina.

An.neuro-psiquiat.Frenocom.mujeres Bogotá—Anales neuro-psiquiatricos del Frenocomio de mujeres de Bogotá. Bogotá, Columbia.

An.oftal.—Anales de oftalmología. Mexico, D.F.

An.paulist.med.e cir.—Anais paulistas de medicina e cirurgia. São Paulo, Brazil.

An.r.Acad.med.—Anales de la real Academia de medicina. Madrid

An.Soc.ginec.españ.—Anales de la Sociedad ginecológica española. Madrid.

An.Soc.puericult.Buenos Aires: See Rev. Soc. puericult. Buenos Aires.

Anaesthesia—Anaesthesia. London.

Anaesthesist—*Der Anaesthesist.* Springer Verlag, Berlin.

Anat.Hefte.—Anatomische Hefte. Wiesbaden, Germany [See also Ergebn.Anat.u. Entwicklungsgesch.]

Anat.Rec.—Anatomical Record. Wistar Institute, Philadelphia.

Anesth.& Analg.—Current Researches in Anesthesia and Analgesia. Rocky River Ohio.

Anesth.et analg.—Anesthésie et analgésie. Masson et Cie. Paris.

Anesthesiology—Anesthesiology. Philadelphia.

Angiologia—Angiologia. Barcelona, Spain.

Angiology—Angiology. The Journal of Vascular Diseases. Williams & Wilkins Co., Baltimore.

Ann.Allergy—Annals of Allergy (including Spanish summaries). St. Paul. Minn.

Ann.Am.Acad.Polit.& Social Sc.—Annals of the American Academy of Political and Social Science. Philadelphia.

Ann.Applied Biol.—Annals of Applied Biology. Cambridge University Press, London; New York.

Ann.Biochem.& Exper.Med.—Annals of Biochemistry and Experimental Medicine. Calcutta.

Ann.Chem.—Annalen der Chemie (Justus Liebig's). Leipzig.

Ann.chim.—Annales de chimie. [Continuation of Ann.chim.et phys.] Masson et Cie., Paris.

Ann.chim.et phys.—Annales de chimie et de physique. [Continued as Ann.chim. and Ann.phys.]

Ann.chir.et gynaec.Fenniae—Annales chirurgiae et gynaecologiae Fenniae. Helsinki.

Ann.Clin.Med.—Annals of Clinical Medicine. [Continued as Ann.Int.Med.]

Ann.clin.med.—Annali di clinica medica. Palermo, Italy.

Ann.clin.Montpellier—Annales cliniques de Montpellier. Montpellier. France.

Ann.Dent.—Annals of Dentistry. Dr. David Mossberg, 36 Central Park South, New York 19.

Ann.dermat.et syph.—Annales de dermatologie et de syphiligraphie. Masson et Cie., Paris.

Ann.Distinguished Serv.Found.Optom.—Annals of the Distinguished Service Foundation of Optometry. Cambridge. Mass.

Ann.endocrinol.—Annales d'endocrinologie. Masson et Cie. Paris.

Ann.Eugenics—Annals of Eugenics. Cambridge University Press, London. New York.

Ann.Fac.med.e chir.Bari—Annali della Facoltà di medicina e chirurgia, R. Università di Bari. Bari, Italy.

Ann.Geburtsh.—Annalen der Geburtshülfe überhaupt und der Entbindungsanstalt zu Marburg insbesondere. Leipzig.

Ann.ges.Heilk.—Annalen für die gesammte Heilkunde. Karlsruhe, Germany.

Ann.Gynec.& Pediat.—Annals of Gynecology and Pediatry. Philadelphia; Boston.

Ann.gynéc.et obst.—Annales de gynécologie et d'obstétrique. Paris.

Ann.Inst.océanograph.—Annales de l'Institut océanographique. Paris.

Ann.Inst.Pasteur—Annales de l'Institut Pasteur. Masson et Cie. Paris.

Ann.Inst.Pasteur Lille—Annales de l'Institut Pasteur de Lille. Lille, France.

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Am.Surgeon—American Surgeon. Williams & Wilkins Co., Baltimore

An.Acad.med.Medellín—Anales de la Academia de medicina de Medellín. Bedout, Medellín, Colombia.

An.Asoc.quím.argent.—Anales de la Asociación química argentina. Buenos Aires.

An.brasil.dermat.e sif.—Anais brasileiros de dermatologia e sifilografia. Rio de Janeiro.

An.brasil.ginec.—Anais brasileiros de ginecologia. Rio de Janeiro.

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An.cien.méd.—Anales de ciencias médicas. Madrid.

An.cir—Anales de cirugía. Rosario, Argentina

An.Fac.med.Bahia—Anais da Faculdade de medicina da Bahia. Salvador Bahia, Brazil.

An.Fac.med.Montevideo—Anales de la Facultad de medicina de Montevideo. Montevideo, Uruguay

An.hig pûb—Anales de higiene pública y medicina legal. Buenos Aires.

An.Fac.med.Univ.São Paulo—Anais da Faculdade de medicina da Universidade de São Paulo. São Paulo, Brazil.

An.Hosp.Santa Cruz y San Pablo—Anales del Hospital de la Santa Cruz y San Pablo. Barcelona.

An.Inst.farm.españ.—Anales del instituto de farmacología española. Fundación Marqués de Urquijo, Madrid.

An.Inst.med.exper—Anales del Instituto de medicina experimental. Universidad nacional de Buenos Aires.

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An.neuro-psiquiat.Frenocom.mujeres Bogotá—Anales neuro-psiquiatricos del Frenocomio de mujeres de Bogotá. Bogotá, Columbia.

An.oftal.—Anales de oftalmología. Mexico, D.F

An.paulist.med.e cir—Anais paulistas de medicina e cirurgia São Paulo, Brazil.

An.r.Acad.med.—Anales de la real Academia de medicina. Madrid

An.Soc.ginec.españ.—Anales de la Sociedad ginecológica española. Madrid.

An.Soc.puericult.Buenos Aires: See Rev Soc. puericult Buenos Aires.

Anaesthesia—Anaesthesia. London.

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Anat.Hefte.—Anatomische Hefte. Wiesbaden, Germany [See also Ergebn.Anat.u. Entwicklungsgesch.]

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Angiology—Angiology The Journal of Vascular Diseases. Williams & Wilkins Co., Baltimore.

Ann.Allergy—Annals of Allergy (including Spanish summaries). St. Paul. Minn.

Ann.Am.Acad.Polit.& Social Sc.—Annals of the American Academy of Political and Social Science. Philadelphia.

Ann.Applied Biol.—Annals of Applied Biology Cambridge University Press, London; New York.

Ann.Biochem.& Exper.Med.—Annals of Biochemistry and Experimental Medicine. Calcutta.

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Ann.Dent.—Annals of Dentistry Dr David Momberg, 36 Central Park South, New York 19.

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Ann.Distinguished Serv.Found.Optom.—Annals of the Distinguished Service Foundation of Optometry Cambridge, Mass.

Ann.endocrinol.—Annales d'endocrinologie Masson et Cie., Paris.

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Ann.Geburtsh.—Annalen der Geburtshülfe überhaupt und der Entbindungsanstalt zu Marburg insbesondere. Leipzig

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Ann.gynéc.et obst.—Annales de gynécologie et d'obstétrique Paris.

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Arch.Anat.Physiol.u.wissensch.Med.—Archiv für Anatomie, Physiologie und wissenschaftliche Medizin. [Continuation of Arch.Anat.u.Physiol.] Leipzig.

Arch.Anthropol.—Archiv für Anthropologie. Brunswick, Germany.

Arch.antropol.—Archivio per l'antropologia e la etnologia. Florence, Italy.

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Arch.Kreislaufforsch.—Archiv für Kreislaufforschung. D. Steinkopff. Darmstadt, Germany.

Arch.Laryng.u.Rhin.—Archiv für Laryngologie und Rhinologie. Berlin.

Arch.lepra—Archivos de lepra. Bogotá, Colombia.

Arch.mal.app.digest.—Archives des maladies de l'appareil digestif et des maladies de la nutrition. [Suppl. Journées des gastro-entérologues français.] Masson et Cie. Paris.

Arch.mal.coeur—Archives des maladies du coeur et des vaisseaux. J. B. Baillière et fils, Paris.

Arch.mal.profess.—Archives des maladies professionnelles, de médecine du travail et de sécurité sociale. Masson et Cie., Paris.

Arch.med.exper.—Archivos de medicina experimental. Madrid.

Arch.méd.expér.et anat.path.—Archives de médecine expérimentale et d'anatomie pathologique. Paris.

Arch.méd.panama.—Archivos médicos panameños. Hospital Santo Tomás, Panama.

Arch.méd.Toulouse—Archives médicales de Toulouse. Toulouse, France.

Arch.mens.obst.et gynéc.—Archives mensuelles d'obstétrique et de gynécologie. Paris.

Arch.mex.ven.y dermat.—Archivos mexicanos de venereo y dermatología. Mexico, D.F.

Arch.Middlesex Hosp.—Archives of the Middlesex Hospital. E. & S. Livingstone, Edinburgh.

Arch.mikr.Anat.—Archiv für mikroskopische Anatomie. Bonn, Germany.

Arch.neurobiol.—Archivos de neurobiología. Madrid.

Arch.neurochir.—Archivio di neurochirurgia. Istituto neurochirurgico "G. Cerletti," Bologna.

Arch.neurocir. Buenos Aires—Archivos de neurocirugía. Buenos Aires.

Arch.Neurol.& Psychiat.: See A.M.A.Arch.Neurol.& Psychiat.

Arch.oftal.Buenos Aires—Archivos de oftalmología de Buenos Aires. Buenos Aires.

Arch.oftal.hispano-am.—Archivos de oftalmología hispano-americanos. Barcelona, Spain.

Arch.Ohren- Nasen- u.Kehlkopfh.—Archiv für Ohren- Nasen- und Kehlkopfheilkunde vereinigt mit Zeitschrift für Hals- Nasen- und Ohrenheilkunde. Springer Verlag, Berlin.

Arch.opht.—Archives d'ophtalmologie. Masson et Cie., Paris.

Arch.Ophth.: See A.M.A.Arch.Ophth.

Arch.Ophth. (von Graefes) See Graefes Arch.Ophth.

Arch.orthop.u.Unfall-Chir.—Archiv für orthopädische und Unfall-Chirurgie mit besonderer Berücksichtigung der Frakturenlehre und der orthopädisch-chirurgischen Technik. J. F. Bergmann, Munich.

Arch.ortop.—Archivio di ortopedia. Edizioni I.D.O.S., Milan, Italy.

Arch.ostet.e ginec.—Archivio di ostetricia [e] ginecologia. Naples, Italy.

Arch.Otol.—Archives of Otology. New York.

Arch.Otolaryng.: See A.M.A.Arch.Otolaryng.

Arch.ottal.—Archivio di ottalmologia. Naples, Italy.

Arch.pat.e clin.med.—Archivio di patologia e clinica medica. L. Cappelli, Bologna.

Arch.Path.: See A.M.A.Arch.Path.

Arch.path.Anat.—Virchow's Archiv für pathologische Anatomie und Physiologie und für klinische Medizin. Springer Verlag, Berlin.

Arch.Pediat.—Archives of Pediatrics. E. B. Treat & Co., New York.

Arch.pediat., Barcelona—Archivos de pediatría. Barcelona, Spain.

Arch.Frauenk.u.Eugenik—Archiv für Frauenkunde und Eugenik. Würzburg, Germany
Arch.gén.chir.—Archives générales de chirurgie. Paris.
Arch.gén.méd.—Archives générales de médecine. Paris.
Arch.ges.Physiol.—Pflüger's Archiv für die gesamte Physiologie des Menschen und der Tiere. Springer Verlag, Berlin
Arch.Geschwulstforsch.—Archiv für Geschwulstforschung. Dresden.
Arch.ginec.y obst.—Archivos de ginecología y obstetricia. Montevideo, Uruguay
Arch.Gynäk.—Archiv für Gynäkologie. J. F. Bergmann, Munich.
Arch.histol.norm.y pat.—Archivos de histología normal y patológica. Buenos Aires.
Arch.Hyg.—Archeia Hygienis. Minister of Hygiene, Athens.
Arch.Hyg.u.Bact.—Archiv für Hygiene und Bakteriologie. Urban & Schwarzenberg, Munich.
Arch.Indust.Hyg.: See A.M.A.Arch.Indust.H.
Arch.Inst.cardiol.México—Archivos del Instituto de cardiología de México. Mexico, D.F.
Arch.Inst.farm.exper.—Archivos del Instituto de farmacología experimental (medicina) Consejo superior de investigaciones científicas, Madrid.
Arch.Inst.nac.cardiol.: See Arch.Inst.cardiol.México.
Arch.Inst.Pasteur Algérie—Archives de l'Institut Pasteur d'Algérie. Algiers.
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Arch.internat.chir.—Archives internationales de chirurgie. Ghent, Belgium.
Arch.internat.pharmacodyn.—Archives internationales de pharmacodynamie et de thérapie. Ghent, Belgium.
***Arch.internat.physiol.**—Archives internationales de physiologie. H. Vaillant-Carmanne S.A., Liège, Belgium.*
Arch.internaz.med.e chir.—Archivio internazionale di medicina e chirurgia. Naples, Italy
Arch.ital.anat.e embriol.—Archivio italiano de anatomia e di embriologia. Florence
Arch.ital.chir.—Archivio italiano di chirurgia. L. Cappelli, Bologna.
Arch.ital.dermat.sif.—Archivio italiano di dermatologia, sifilografia e venereologia. L. Cappelli, Bologna.
Arch.ital.laring.—Archivii italiani di laringologia. Università di Napoli, Naples.
Arch.ital.mal.app.diger.—Archivio italiano delle malattie dell'apparato digerente. L. Cappelli, Bologna.
Arch.ital.otol.—Archivio italiano di otologia, rinologia e laringologia. Milan.
Arch.ital.pediat.—Archivio italiano di pediatria. Naples.
Arch.ital.pediat.e puericolt.—Archivio italiano di pediatria e puericoltura. L. Cappelli, Bologna.
Arch.ital.sc.med.colon.—Archivio italiano di scienze mediche coloniale. Modena.
***Arch.ital.urol.**—Archivio italiano di urologia. L. Cappelli, Bologna.*
Arch.jap.Chir.—Archiv für japanische Chirurgie. Chirurgische Universitaetsklinik, Kyoto.
Arch.Julius Klaus-Stift. Vererbgsforsch.—Archiv der Julius Klaus-Stiftung für Vererbungsforschung Sozialanthropologie und Rassenhygiene. Zurich, Switzerland
Arch.Kinderh.—Archiv für Kinderheilkunde. F. Enke, Stuttgart, Germany
Arch.klin.Chir.—Langenbeck's Archiv für klinische Chirurgie. Kongressorgan der deutschen Gesellschaft für Chirurgie vereinigt mit Deutsche Zeitschrift für Chirurgie. Springer Verlag, Berlin.

Arq brasil.med.—Arquivos brasileiros de medicina. Rio de Janeiro.
Arq brasil.neuriat.e psiquiat.—Arquivos brasileiros de neuriatria e psiquiatria. Rio de Janeiro.
Arq brasil.oftal.—Arquivos brasileiros de oftalmologia. São Paulo.
Arq brasil.psicotéc.—Arquivos brasileiros de psicotécnica. Rio de Janeiro.
Arq cir.clin.e exper.—Arquivos de cirurgia clínica e experimental. São Paulo, Brazil.
Arq clin.—Arquivos de clínica. Rio de Janeiro.
Arq Depart.assist.psicopat.—Arquivos do Departamento de assistência a psicopatas do estado de São Paulo. Hospital de Juqueri, São Paulo, Brazil.
Arq.dermat.e sif.São Paulo—Arquivos de dermatologia e sifiligrafia de São Paulo. São Paulo, Brazil.
Arq hig.e saúde púb.—Arquivos de higiene e saúde pública. São Paulo, Brazil.
Arq.Inst.brasil.invest.tuberc.—Arquivos do Instituto brasileiro para investigação da tuberculose. Bahia, Brazil.
Arq.Inst.Penido Burnier—Arquivos do Instituto Penido Burnier. São Paulo, Brazil.
Arq Inst.quím.-biol.est.d.Minas Gerais—Arquivos do Instituto químico-biológico do estado de Minas Gerais. Belo Horizonte, Brazil.
Arq mineir.leprol.—Arquivos mineiros de leprologia. Belo Horizonte, Brazil.
Arq neuro-psiquiat.—Arquivos de neuro-psiquiatria. São Paulo, Brazil.
Arq pat.—Arquivos de patologia. Lisbon.
Arq.Soc.med.leg.e criminol.S.Paulo—Arquivos da Sociedade de medicina legal e criminologia de S.Paulo. São Paulo, Brazil.
Ars méd., Barcelona—Ars médica, revista de medicina, cirugía y especialidades. Barcelona, Spain.
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Arte ostet.—L'arte ostetrica. Milan, Italy.
Arzneimittel-Forsch.—Arzneimittel-Forschung. Editio Cantor. Freiburg, Germany.
Ärztl.Ber.k.k.allg.Krankenh.Wien—Ärztliche Berichte des kaus.königlichen allgemeinen Krankenhauses zu Wien. Vienna.
Ärztl.Forsch.—Ärztliche Forschung. Bad Wörishofen, Germany.
Ärztl.Praxis—Die ärztliche Praxis. Vienna.
Ärztl.Rundschau—Ärztliche Rundschau. Munich.
Ärztl.Sachverst.-Ztg.—Ärztliche Sachverständigen-Zeitung. Berlin.
Ärztl.Vereinsbl.—Ärztliches Vereinsblatt für Deutschland. Leipzig.
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Ateneo parmense—L'ateneo parmense. Palazzo Universitario, Parma, Italy.
Atlanta J.-Rec.Med.—Atlanta Journal-Record of Medicine. Atlanta, Ga.
Atti Accad.fisiocrit.Siena—Atti Accademia dei fisiocritici-Siena e studi della facoltà medica senese. Siena, Italy.
Attual.med.ital.—Attualità medica italiana. Pisa.
Australasian Ann.Med.—Australasian Annals of Medicine. Sydney.
Australian J.Exper.Biol.& M.Sc.—Australian Journal of Experimental Biology and Medical Science. University of Adelaide. Adelaide.
Australian M.J.—Australian Medical Journal. Merged with Australasian M.Gaz. to form M.J.Australia.
Australian & New Zealand J.Surg.—Australian and New Zealand Journal of Surgery. A. H. Massina & Co., Melbourne.

Arch.Pharm.—Archiv der Pharmacie. Berlin.

Arch.phys.-diätet.Therap.—Archiv für physikalisch-diätetische Therapie in der ärztlichen Praxis. Berlin.

Arch.Phys.Med.—Archives of Physical Medicine and Rehabilitation. Chicago.

Arch phys.Therap.—Archiv für physikalische Therapie. G Thieme, Stuttgart, Germany

Arch.physiol.norm.et path.—Archives de physiologie normale et pathologique Paris.

Arch.prakt.Heilk.—Archiv der praktischen Heilkunde für Schlesien und Südpreussen. Breslau Germany

Arch.psicol.neurol.e psichiat.—Archivio di psicologia, neurologia e psichiatria. Milan, Italy

Arch. Psychiat.—Archiv für Psychiatrie und Nervenkrankheiten vereinigt mit Zeitschrift für die gesamte Neurologie und Psychiatrie. Springer Verlag, Berlin.

Arch.radiol.—Archivio di radiologia. Naples, Italy

Arch.Radiol.& Electroth.—Archives of Radiology and Electrotherapy London.

Arch.Rassen- u.Gesellsch.-Biol.—Archiv fur Rassen- und Gesellschafts-Biologie, einschliesslich Rassen- und Gesellschafts-Hygiene. Berlin.

Arch.Rio-Grand.med.—Archivos Rio-Grandenses de medicina. Porto Alegre Brazil.

Arch.Roentg.Ray—Archives of the Roentgen Ray [Continued as Arch.Radiol.& Electroth.]

Arch.sc.biol., USSR.—Archives des sciences biologiques. Leningrad. [Discontinued 1941]

Arch.sc.biol—Archivio di scienze biologiche. L. Cappelli, Bologna, Italy

Arch.sc.med.—Archivio per le scienze mediche. Edizioni Minerva medica, Turin, Italy

Arch.Soc.biol.Montevideo—Archivos de la Sociedad de biología de Montevideo. Montevideo, Uruguay

Arch.Soc.estud. clin.Habana—Archivos de la Sociedad de estudios clínicos de la Habana. Havana, Cuba.

Arch.Soc.oftal.hispano-am.—Archivos de la Sociedad oftalmológica hispano-americana. Madrid.

Arch.stud.fisiopat.—Archivio per lo studio della fisiopatologia e clinica del ricambio. Florence, Italy

Arch.suisses d'anthropol.gén.—Archives suisse d anthropologie générale. Geneva.

Arch.Surg : See A.M.A.Arch.Surg

Arch.tisiol.—Archivio di tisiologia. Istituto Sanatoriale "Principi di Piemonte," Naples, Italy

Arch urol.Clin.Necker—Archives urologiques de la Clinique de Necker Paris.

Arch.urug.med.—Archivos uruguayos de medicina, cirugía y especialidades. Montevideo, Uruguay

Arch.de Vecchi anat.pat.—Archivio "de Vecchi" per l'anatomia patologica e la medicina clinica. Florence, Italy

Arch.wissensch.u.prakt.Thierh.—Archiv für wissenschaftliche und praktische Thierheilkunde. Berlin.

Arch.Zellforsch.—Archiv für Zellforschung Leipzig

Ard.med.—Ardealul medical. Cluj Rumania.

Arizona Med.—Arizona Medicine Phoenix

Army & Navy J —Army and Navy Journal Washington, D.C.

Arq brasil.cardiol.—Arquivos brasileiros de cardiologia. Dr Jairo A. Ramos, Rua Araujo, 165, São Paulo.

Bl.Gesundheitspflg.—Blätter für Gesundheitspflege. [Continued as Schweiz.Bl.Gesundhtspflg.]

Blood—Blood, The Journal of Hematology. Grune & Stratton, New York.

Bol.Asoc.méd.Puerto Rico—Boletín de la Asociación médica de Puerto Rico. Santurce

Bol.Clin.hosp.civis Lisboa—Boletim clínico dos hospitais civis de Lisboa. Hospital Estefânia, Lisbon, Portugal.

Bol.Col.brasil.cirurgiões—Boletim do Colegio brasileiro de cirurgiões. Rio de Janeiro.

Bol.Cons.sup.salub.—Boletín del Consejo superior de salubridad. San Salvador, El Salvador.

Bol.Hosp.oftal.N.S.Luz—Boletín del Hospital oftalmológico de Nuestra Señora de la Luz. Mexico, D.F.

Bol.Hosp.Viña del Mar—Boletín Hospital de Viña del Mar. Viña del Mar, Chile.

Bol.Inst.pat.—Boletín del Instituto patológico. Mexico, D.F.

Bol.Liga contra cáncer—Boletín de la Liga contra el cáncer. Havana, Cuba.

Bol.med.y cir.—Boletín de medicina y cirugía. Madrid.

Bol.Ofic.san.panam.—Boletín de la Oficina sanitaria panamericana. Washington, D.C.

Bol.san.Dep.nac.hig., Buenos Aires—Boletín sanitario del Departamento nacional de higiene. Buenos Aires.

Bol.Secc.san.policía nac.—Boletín de la Sección de sanidad de la policía nacional. Havana.

Bol.Soc.cir.Rosario—Boletines de la Sociedad de cirugía de Rosario. Librería y Editorial Ruiz, Rosario, Argentina.

Bol.Soc.cir.Uruguay—Boletín de la Sociedad de cirugía del Uruguay. Montevideo.

Bol.y trab.Acad.argent.cir.—Boletines y trabajos, Academia argentina de cirugía. Buenos Aires.

Bol.y trab.Soc.cir.Córdoba—Boletines y trabajos, Sociedad de cirugía de Córdoba. Córdoba, Argentina.

Boll.Ist.sieroterap.milanese—Bollettino dell'Istituto sieroterapico milanese. Milan.

Boll.e mem.Soc.tosco-umbra chir.—Bollettino e memorie della Società tosco-umbra di chirurgia. Fratelli Stianti, Florence, Italy.

Boll.ocul.—Bollettino d'oculistica. L. Cappelli, Bologna, Italy.

Boll.Soc.ital.med.e ig.trop.—Bollettino della Società italiana di medicina e igiene tropicale. (Sezione Eritrea.) L'Ospedale "Regina Elena" di Asmara, Eritrea.

Bordeaux chir.—Bordeaux chirurgical. Bordeaux, France.

Brain—Brain. The Macmillan Company. New York.

Brasil-med.—Brasil-médico. Rio de Janeiro.

Brasil med.-cir.—Brasil médico-cirúrgico. Rio de Janeiro.

Brit.& Colon.Druggist—British and Colonial Druggist. London.

Brit.& For.M.Rev.—British and Foreign Medical Review. London.

Brit.Heart J.—British Heart Journal. British Medical Association, London.

Brit.J.Anaesth.—British Journal of Anaesthesia. Sherratt & Sons (St. Ann's Press), Altrincham, England.

Brit.J.Cancer—British Journal of Cancer. H. K. Lewis & Co., London.

Brit.J.Child.Dis.—British Journal of Children's Diseases. London.

Brit.J.Clin.Pract.—British Journal of Clinical Practice (Incorporating Medicine Illustrated). Harvey & Blythe, London.

Brit.J.Dermat.—British Journal of Dermatology. H. K. Lewis & Co., London.

Brit.J.Exper.Path.—British Journal of Experimental Pathology. H. K. Lewis & Co., London.

Bact.Rev —Bacteriological Reviews. Williams & Wilkins Co., Baltimore.

Balneol Centr -Ztg —Balneologische Centralzeitung Berlin.

Beihefte Arch.Schiffs- u.Tropen-Hyg —Beihefte zum Archiv für Schiffs- und Tropen-Hygiene. Leipzig

Beihefte Ztschr.ang.Psychol.—Beihefte zur Zeitschrift für angewandte Psychologie und psychologische Sammelforschung Leipzig

Beitr chem.Physiol.u.Path.—Beiträge zur chemischen Physiologie und Pathologie (Hofmeisters) Brunswick, Germany

Beitr exper Therap —Beiträge zur experimentellen Therapie. Berlin.

Beitr Geburtsh.u.Gynäk.—Beiträge zur Geburtshülfe und Gynäkologie. Berlin.

Beitr.klin.Chir —Bruns' Beiträge zur klinischen Chirurgie. Urban & Schwarzenberg Munich.

Beitr.Klin.Tuberk.—Beiträge zur Klinik der Tuberkulose und spezifischen Tuberkulose-Forschung Springer Verlag Berlin.

Beitr path.Anat.—Beiträge zur pathologischen Anatomie und zur allgemeinen Pathologie. G Fischer Jena, Germany

Beitr.Physiol.—Beiträge zur Physiologie. Berlin.

Beitr prakt.Augenh.—Beiträge zur praktischen Augenheilkunde. Berlin Leipzig

Beitr prakt.Heilk.—Beiträge zur praktischen Heilkunde, mit vorzüglicher Berücksichtigung der medizinischen Geographie, Topographie und Epidemiologie. Leipzig

Belg tijdschr geneesk.—Belgisch tijdschrift voor geneeskunde. Louvain.

Ber deutsch.chem.Gesellsch.—Berichte der deutschen chemischen Gesellschaft. Berlin.

Ber deutsch.ophth.Gesellsch.—Bericht der deutschen ophthalmologischen Gesellschaft. J F Bergmann, Munich.

Ber deutsch pharm.Gesellsch.—Berichte der deutschen pharmaceutischen Gesellschaft. Berlin.

Ber Gsndhtsrath.Zürich—Berichte des Gesundheitsrathes an die hohe Regierung in Zürich. Zurich, Switzerland.

Berl.klin.Wchnschr —Berliner klinische Wochenschrift. Berlin.

Berl.Klinik—Berliner Klinik. Berlin.

Berl.med.Centr -Ztg —Berliner medizinische Central-Zeitung [Continued as Allg.med. Centr -Ztg]

Berl.tierärztl.Wchnschr —Berliner tierärztliche Wochenschrift. Berlin.

Berl.zahnärztl.Vereinsbl.—Berliner zahnärztliches Vereinsblatt. Berlin.

Bibl ges.med.Wissensch.—Bibliothek der gesamten medizinischen Wissenschaften für praktische Ärzte und Specialärzte. Vienna Leipzig

Bibl.laeger—Bibliotek for laeger Einar Munksgaard, Copenhagen.

Bibl.prakt.Heilk.—Bibliothek der praktischen Heilkunde. Jena, Germany Berlin.

Biochem.J —Biochemical Journal. Cambridge University Press, London New York.

Biochem.Ztschr —Biochemische Zeitschrift. Springer Verlag Berlin

Biochim.et biophys.acta—Biochimica et biophysica acta. Elsevier Press, Amsterdam, Netherlands, Houston, Texas.

Biokhimiya—Biokhimiya. Akademkniga, Moscow

Biol.méd.—Biologie médicale. Paris.

Biol.Zentralbl.—Biologisches Zentralblatt. Leipzig

Biometrika—Biometrika. University College, London.

Birth Control Rev —Birth Control Review New York.

Bull.internat.serv.san.—Bulletin international des services de santé des armées de terre, de mer et de l'air. Liège, Belgium.

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Bull.New York M.Coll.—Bulletin New York Medical College, Flower and Fifth Avenue Hospitals. New York.

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Bull.Ophth.Soc.Egypt—Bulletin of the Ophthalmological Society of Egypt. Cairo.

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Bull.Rheumat.Dis.—Bulletin on Rheumatic Diseases. New York Chapter Arthritis and Rheumatism Foundation, New York.

Bull.sc.med.—Bullettino delle scienze mediche. Società medica chirurgica, Bologna, Italy.

Bull.School Med.Univ.Maryland—Bulletin of the School of Medicine, University of Maryland. Baltimore.

Bull.schweiz.Akad.med.Wissensch.—Bulletin der schweizerischen Akademie der medizinischen Wissenschaften. B. Schwabe & Co., Basel.

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Bull.Soc.chim.biol.—Bulletin de la Société de chimie biologique. Masson et Cie., Paris.

Bull.Soc.franç.dermat.et syph.—Bulletin de la Société française de dermatologie et de syphiligraphie. Masson et Cie., Paris.

Bull.Soc.franç.urol.—Bulletin de la Société française d'urologie. Paris.

Bull.Soc.opht.France—Bulletin des Sociétés d'ophtalmologie de France. Dr. P. Dervignes, Treas., 27 rue du Cherche Midi, Paris 6e.

Bull.Soc.path.exot.—Bulletin de la Société de pathologie exotique. Masson et Cie., Paris.

Bull.Soc.pharm.Paris—Bulletin de la Société de pharmacie de Paris. Paris.

Brit.J.Indust.Med.—British Journal of Industrial Medicine. British Medical Association, London. [American agent—Grune & Stratton, New York.]

Brit.J.M.Psychol.—British Journal of Medical Psychology (Medical Section of British Journal of Psychology) Cambridge University Press, London.

Brit.J.Nutrition—British Journal of Nutrition. Cambridge University Press, London.

Brit.J Ophth.—British Journal of Ophthalmology British Medical Association, London.

Brit.J.Pharmacol.—British Journal of Pharmacology and Chemotherapy British Medical Association, London.

Brit.J.Phys.Med.—British Journal of Physical Medicine Including Its Application to Industry Butterworth & Co., Ltd, London

Brit.J.Plast.Surg —British Journal of Plastic Surgery E. & S. Livingstone, Ltd., Edinburgh. [American agent—Williams & Wilkins Co. Baltimore.]

Brit.J.Prev.& Social Med.—British Journal of Preventive & Social Medicine. [Continuation of Brit.J Social Med.] British Medical Association, London.

Brit.J.Radiol.—British Journal of Radiology British Institute of Radiology London.

Brit.J.Rheumat.—British Journal of Rheumatism. Baillière, Tindall & Cox, London.

Brit.J.Social Med.—British Journal of Social Medicine. [Continued as Brit.J Prev.& Social Med.]

Brit.J.Surg —British Journal of Surgery J Wright & Sons, Ltd., Bristol, England [American agent—Williams & Wilkins Co., Baltimore.]

Brit.J Tuberc.—British Journal of Tuberculosis and Diseases of the Chest. Baillière, Tindall & Cox, London.

Brit.J Urol.—British Journal of Urology E. & S Livingstone, Ltd., Edinburgh.

Brit.J Ven.Dis.—British Journal of Venereal Diseases. British Medical Association, London [American agent—Grune & Stratton, New York.]

Brit.M.Bull.—British Medical Bulletin. The British Council, London.

Brit.M.J —British Medical Journal. British Medical Association, London.

Bronchoscop.oesophagoscop et gastroscop.: [Incorporated in Ann.oto-laryng]

Bruns Beitr.klin.Chir : See Beitr.klin.Chir

Bull.Acad.nat.méd.—Bulletin de l'Académie nationale de médecine. Masson et Cie., Paris.

Bull.Am.Cancer Soc.—Bulletin of the American Cancer Society New York.

Bull.Am.Coll.Surgeons—Bulletin of the American College of Surgeons. Chicago.

Bull.Assoc.franç.étude cancer—Bulletin de l'Association française pour l'étude du cancer Masson et Cie., Paris.

Bull.Assoc.méd.lang.franç.Canada: [Incorporated in Union méd.Canada.]

Bull.Charlotte Mem.Hosp —Bulletin of the Charlotte Memorial Hospital. The Heineman Foundation, Charlotte, N C.

Bull.Féd.soc.gynéc.et obst.—Bulletin de la Féderation des sociétés de gynécologie et d'obstétrique de langue française. [Suppl. to Gynéc. et. obst.] Masson et Cie., Paris.

Bull.gén de thérap.—Bulletin général de thérapeutique médicale et chirurgicale Paris.

Bull.Hist.Med.—Bulletin of the History of Medicine. Johns Hopkins Press, Baltimore.

Bull.histol.appliq physiol.—Bulletin d'histologie appliquée à la physiologie et à la pathologie et de technique microscopique. Lyons, France.

Bull.Hosp.Joint Dis.—Bulletin of the Hospital for Joint Diseases, New York.

Bull.Inst.Hyg.Maroc—Bulletin de l'Institut d'hygiène du Maroc. Éditions Félix Moncho, Rabat, Morocco.

Bull.internat.Acad.polon.sc.et lett.Cl.méd.—Bulletin international de l'Académie polonaise des sciences et des lettres, Classe de médecine Cracow

Bull.internat.serv.san.—Bulletin international des services de santé des armées de terre, de mer et de l'air. Liège, Belgium.

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Bull.Soc.franç.dermat.et syph.—Bulletin de la Société française de dermatologie et de syphiligraphie. Masson et Cie., Paris.

Bull.Soc.franç.urol.—Bulletin de la Société française d'urologie. Paris.

Bull.Soc.opht.France—Bulletin des Sociétés d'ophtalmologie de France. Dr. P. Dorvignes, Treas., 27, rue du Cherche-Midi, Paris 6e.

Bull.Soc.path.exot.—Bulletin de la Société de pathologie exotique. Masson et Cie., Paris.

Bull.Soc.pharm.Paris—Bulletin de la Société de pharmacie de Paris. Paris.

Bull.Soc.sc.Alger—Bulletin de la Société des sciences physiques, naturelles et climatologiques d'Alger Algiers.

Bull.Soc.scient.hyg.aliment.—Bulletin de la Société scientifique d'hygiene alimentaire et d'alimentation rationnelle de l'homme Paris.

Bull trav.Soc.pharm.Bordeaux—Bulletin des travaux de la *Société de pharmacie de* Bordeaux. Bordeaux, France.

Bull.Union internat.contre tuberc.—Bulletin de l'Union internationale contre la tuberculose. Paris.

Bull.World Health Organ.—Bulletin of the World Health Organization. Geneva.

Caducée—Le caducée: Journal de chirurgie et de médecine d'armée. Paris.

Cairo Sc.J—Cairo Scientific Journal. Alexandria, Egypt.

California M.& S.Reporter—California Medical and Surgical Reporter Los Angeles.

California Med.—California Medicine. San Francisco

Canad.J.M.Sc.—Canadian Journal of Medical Sciences. The National Research Council, Ottawa.

Canad.J.Ment.Hyg—Canadian Journal of Mental Hygiene. Toronto.

Canad.J.Pub.Health—Canadian Journal of Public Health. Toronto.

Canad.M.A.J—Canadian Medical Association Journal. Montreal.

Canad.Pract.& Rev—Canadian Practitioner and Review [*Consolidation of Canad.* Pract.and Canad.M.Rev] Toronto.

Canada Lancet—Canada Lancet. Toronto.

Canada M.Rec.—Canada Medical Record. Montreal.

Cancer—Cancer A Journal of the American Cancer Society J B. Lippincott Co., Philadelphia.

Cancer Res.—Cancer Research. University of Chicago Press, Chicago.

Cardiologia—Cardiologia. S Karger Basel, Switzerland.

Casop.lék.cesk.—Casopis lékaru ceských. Prague, Czechoslovakia.

Centaurus—Centaurus. International Magazine of the History of Science and Medicine. Einar Munksgaard, Copenhagen.

Centralbl.: See also Zentralbl.

Centralbl.allg Gsndhtspflg—Centralblatt für allgemeine Gesundheitspflege Bonn, Germany

Centralbl.Grenzgeb.Med.u.Chir—*Centralblatt* für die Grenzgebiete der Medizin und Chirurgie. Jena, Germany

Centralbl.Krankh.Harn- u.Sex.-Org—Centralblatt für die Krankheiten der Harn- und Sexual-Organe. [*Combined with Monatsbl.Urol. to form Ztschr Urol*]

Centralbl.med.Wissensch.—Centralblatt für die medizinischen Wissenschaften. Berlin.

Centralbl.prakt.Augenh.—Centralblatt für praktische Augenheilkunde Leipzig

Centralbl.Stoffwechsel- u.Verdauungskr—Centralblatt für Stoffwechsel und Verdauungs-Krankheiten. [Continued as Zentralbl.ges.Physiol.u.Path.Stoffwechs.]

Cervello—Il cervello. Naples.

Ceylon M.J—Ceylon Medical Journal. [Continuation of J Ceylon Br.Brit.M.A.] Ceylon Medical Association, Colombo.

Charité-Ann.—Charité-Annalen. Berlin.

Charlotte M J—Charlotte Medical Journal. Charlotte, N C.

Chem.Abstr—Chemical Abstracts. Easton, Pa.

Chem.News—Chemical News and Journal of Physical Science London.

Chem.Zentralbl.—Chemisches Zentralblatt. Leipzig

Chicago M.Rec.—Chicago Medical Recorder. [Continued as Radiol.Rev.& Chicago M.Rec.]

Chicago M.Soc.Bull.—Chicago Medical Society Bulletin.

Child Development—Child Development Abstracts and Bibliography. Baltimore

Child Study—Child Study. New York.

Chinese M.J.—Chinese Medical Journal. Peiping

Chir.ernia—Chirurgia dell' ernia. Naples, Italy

Chir.ital.—Chirurgia italiana. Belluno.

Chir.org.movimento—La chirurgia degli organi di movimento. L. Cappelli, Bologna, Italy

Chir.torac.—La chirurgia toracica. Abruzzini, Rome.

Chirurg—Der Chirurg. Springer Verlag. Berlin.

Chirurgia—Chirurgia. Milan, Italy

Cienc.e invest.—Ciencia e investigación. Buenos Aires.

Ciencia—Ciencia. Mexico, D.F.

Cincinnati J.Med.—Cincinnati Journal of Medicine.

Cir.ap.locom.—[Continued as Acta ortop.-traumatol.Ibér.]

Cir.ginec.y urol.—Cirugía, ginecología y urología. Madrid.

Circulation—Circulation. The Journal of the American Heart Association. Grune & Stratton, New York

Circulation Res.—Circulation Research. A Journal of the American Heart Association. Grune & Stratton, New York.

Cirugía—Cirugía. Buenos Aires.

Cleveland M.J.—Cleveland Medical Journal. Cleveland.

Clifton M.Bull.—Clifton Medical Bulletin. Clifton Springs, N.Y.

Clin.chir.—Clinica chirurgica. Milan, Italy

Clín.contemp.—Clínica contemporânea. Instituto português de oncologia. Lisbon.

Clin.med.—Clinica moderna. Florence, Italy

Clin.opht.—La clinique ophtalmologique. Paris.

Clin.pediat.—La clinica pediatrica. Bologna, Italy

Clin.Proc.Child.Hosp.—Clinical Proceedings of the Children's Hospital. Washington, D.C.

Clin.Sc.—Clinical Science. Shaw & Sons, London.

Clin.terap.—La clinica terapeutica. Rome.

Clin.tisiol.—Clinica tisiologica. Rio de Janeiro.

Clinica, Bologna—La Clinica. L. Cappelli, Bologna, Italy

Clinique Montreal—La Clinique. Montreal.

Collect.Papers Mayo Clin.—Collected Papers of the Mayo Clinic and the Mayo Foundation. W. B. Saunders Co., Philadelphia.

Compens.Med.—Compensation Medicine. New York.

Compt.rend.Acad.roy.méd.Belgique—Compte-rendu des travaux de l'Académie royale de médecine de Belgique. Brussels.

Compt.rend.Acad.sc.URSS—Comptes rendus (doklady) de l'Académie des sciences de l'URSS. Moscow

Bull.Soc.sc.Alger—Bulletin de la Société des sciences physiques, naturelles et climatologiques d'Alger Algiers.

Bull.Soc.scient.hyg.aliment.—Bulletin de la Société scientifique d'hygiene alimentaire et d'alimentation rationnelle de l'homme Paris.

Bull trav.Soc.pharm.Bordeaux—Bulletin des travaux de la Société de pharmacie de Bordeaux. Bordeaux, France.

Bull.Union internat.contre tuberc.—Bulletin de l'Union Internationale contre la tuberculose. Paris.

Bull World Health Organ.—Bulletin of the World Health Organization. Geneva.

Caducée—Le caducée Journal de chirurgie et de médecine d'armée. Paris.

Cairo Sc.J—Cairo Scientific Journal. Alexandria, Egypt.

California M.& S.Reporter—California Medical and Surgical Reporter Los Angeles.

California Med.—California Medicine. San Francisco.

Canad.J.M.Sc.—Canadian Journal of Medical Sciences. The National Research Council, Ottawa.

Canad.J.Ment.Hyg—Canadian Journal of Mental Hygiene. Toronto.

Canad.J.Pub.Health—Canadian Journal of Public Health. Toronto.

Canad.M.A.J—Canadian Medical Association Journal Montreal.

Canad.Pract.& Rev—Canadian Practitioner and Review [Consolidation of Canad. Pract.and Canad.M.Rev] Toronto.

Canada Lancet—Canada Lancet. Toronto.

Canada M.Rec.—Canada Medical Record. Montreal.

Cancer—Cancer A Journal of the American Cancer Society J B. Lippincott Co., Philadelphia.

Cancer Res.—Cancer Research. University of Chicago Press, Chicago.

Cardiologia—Cardiologia. S. Karger Basel, Switzerland.

Časop.lék.česk.—Časopis lékaru českých. Prague, Czechoslovakia.

Centaurus—Centaurus. International Magazine of the History of Science and Medicine. Einar Munksgaard, Copenhagen.

Centralbl.: See also Zentralbl.

Centralbl.allg Gsndhtspflg—Centralblatt für allgemeine Gesundheitspflege. Bonn, Germany

Centralbl.Grenzgeb.Med.u.Chir—Centralblatt für die Grenzgebiete der Medizin und Chirurgie. Jena, Germany

Centralbl.Krankh.Harn- u.Sex.-Org—Centralblatt für die Krankheiten der Harn- und Sexual-Organe. [Combined with Monatsbl.Urol. to form Ztschr Urol.]

Centralbl.med.Wissensch.—Centralblatt für die medizinischen Wissenschaften. Berlin.

Centralbl.prakt.Augenh.—Centralblatt für praktische Augenheilkunde Leipzig

Centralbl.Stoffwechsel- u.Verdauungskr—Centralblatt für Stoffwechsel- und Verdauungs-Krankheiten. [Continued as Zentralbl ges.Physiol.u.Path.Stoffwechs.]

Cervello—Il cervello. Naples.

Ceylon M.J—Ceylon Medical Journal. [Continuation of J Ceylon Br.Brit.M.A.] Ceylon Medical Association, Colombo.

Charité-Ann.—Charité-Annalen. Berlin.

Charlotte M.J—Charlotte Medical Journal. Charlotte N C.

Chem.Abstr—Chemical Abstracts. Easton, Pa.

Chem.News—Chemical News and Journal of Physical Science London.

Docum.med.geog.et trop.—Documenta de medicina geographica et tropica. F.K.A.A. Lambrecht, Trans., Rivierenlaan 68, Amsterdam Z.

Dominion M.Monthly—Dominion Medical Monthly Toronto.

Duodecim [Published in Nord.med.]

East African M.J.—East African Medical Journal. Nairobi, Kenya Colony

Edinburgh M.J.—Edinburgh Medical Journal. [Merged with Glasgow M.J. to form Scottish M.J.]

Electroencephalog.& Clin.Neurophysiol.—Electroencephalography and Clinical Neurophysiology Montreal.

Encéphale—L'Encéphale, journal de neurologie, de psychiatrie et de médecine psychosomatique. [Supplément L'Hygiène mentale.] G. Doin & Cie., Paris.

Endocrinology—Endocrinology Charles C Thomas, Springfield, Ill.

Endokrinologie—Endokrinologie J. A. Barth, Munich.

Epidemiol.Rep.League of Nations—Monthly Epidemiological Report of the Health Section of the Secretariat, League of Nations. Geneva. [Ceased publication.]

Epidemiol.& Vital Statist.Rep.—Epidemiological and Vital Statistics Report. World Health Organization, Geneva.

Epilepsia—Epilepsia. Amsterdam, Leipzig

Ergebn.Anat.u.Entwicklngsgesch.—Ergebnisse der Anatomie und Entwicklungsgeschichte. Wiesbaden, Germany [Part 2 of Anat.Hefte.] [Ceased publication 1944.]

Ergebn.ges.Tuberk.-Forsch.—Ergebnisse der gesamten Tuberkuloseforschung G Thieme, Stuttgart, Germany

Ergebn.Hyg.Bakt.—Ergebnisse der Hygiene, Bakteriologie Immunitätsforschung und experimentellen Therapie. Springer Verlag Berlin.

Ergebn.inn.Med.u.Kinderh.—Ergebnisse der inneren Medizin und Kinderheilkunde. Springer Verlag, Berlin.

Eugenics Rev.—Eugenics Review London.

Evolution méd.-chir.—Evolution médico-chirurgicale. Paris.

Exper.Med.& Surg.—Experimental Medicine and Surgery S. Karger Basel

Exper.Parasitol.—Experimental Parasitology Academic Press, New York.

Extrême-Orient méd.—L'Extrême-Orient médical. Institut du Cancer Hanoi, Indochina.

Eye Ear Nose & Throat Month.—Eye, Ear Nose & Throat Monthly Professional Press, Inc., Chicago.

Farmaco—Il farmaco. Pavia, Italy

Farmacoterap.actual—Farmacoterapia actual. Madrid.

Fed.Proc. Federation Proceedings. Federation of American Societies for Experimental Biology Washington, D.C.

Fertil.& Steril.—Fertility and Sterility Paul B. Hoeber New York.

Finska läk.-sällsk.handl.—Finska läkaresällskapets handlingar Sönderborg, Helsinki.

Folia cardiol.—Folia cardiologica. Milan.

Folia clin.internac.—Folia clinica internacional. Barcelona.

Folia endocrinol.—Folia endocrinologica. Pisa, Italy

Folia gynaec.—Folia gynaecologica. Pavia, Italy

Folia haemat.—Folia haematologica. Geest & Portig, Leipzig.

Folia med.—Folia medica. V. Idelson, Naples, Italy

Folia neuro-biol.—Folia neuro-biologica. Leipzig.

Folia oto-laryng.orient. [Continued as Acta oto-laryng.orient.]

Compt.rend.l'Assoc.anat.—Comptes rendus de l'Association des anatomistes. Paris Nancy France.

Compt.rend.trav.lab Carlsberg série chim.—Comptes rendus des travaux du laboratoire Carlsberg série chimique. Carlsberg Laboratory Copenhagen.

Confinia neurol.—Confinia neurologica. S Karger Basel, Switzerland.

Cong.méd.domin.centen.mem.—Congreso médico dominicano del centenario, memoria. Santiago, Dominican Republic.

Connecticut M.J—Connecticut State Medical Journal. New Haven.

Contrib.Embryol.—Contributions to Embryology Washington, D C.

Cor -Bl.schweiz.Ärzte—Correspondenz Blatt für schweizer Ärzte. Basel, Switzerland.

Cor -Bl.Zahnärzte—Correspondenz Blatt für Zahnärzte Berlin.

Cornell Vet.—Cornell Veterinarian Ithaca, N Y

Crón.méd.mex.—Crónica médica mexicana. Mexico, D F

Crón.oftal.—Crónica oftalmológica. Cádiz, Spain.

Cuore e circolaz.—Cuore e circolazione. L. Pozzi, Rome.

Current Res.Anesth.& Analg —See Anesth.& Analg

Delaware M.J—Delaware State Medical Journal. Farnhurst, Del.

Dental Digest—Dental Digest. New York.

Dermat.Wchnschr—Dermatologische Wochenschrift. [Continuation of Monatsh prakt. Dermat.] J A. Barth, Leipzig

Dermatologica—Dermatologica. S Karger Basel, Switzerland.

Detroit M.J—Detroit Medical Journal. Detroit.

Deutsche Klin.—Deutsche Klinik am Eingange des zwanzigsten Jahrhunderts in akademischen Vorlesungen. Berlin Vienna.

Deutsche med.Wchnschr—Deutsche medizinische Wochenschrift. (Including supplements Allergie Die Bluttransfusion Arzt und Sport) G Thieme, Stuttgart.

Deutsche Med.-Ztg—Deutsche Medizinal-Zeitung Berlin.

Deutsche mil -ärztl.Ztschr—Deutsche militärärztliche Zeitschrift. Berlin.

Deutsche Monatsschr.Zahnh.—Deutsche Monatsschrift für Zahnheilkunde Leipzig

Deutsche zahnärztl.Ztg—Deutsche zahnärztliche Zeitung Munich.

Deutsche Ztschr ges.gerichtl.Med.—Deutsche Zeitschrift für die gesamte gerichtliche Medizin. Springer Verlag Berlin.

Deutsche Ztschr.Nervenh.—Deutsche Zeitschrift für Nervenheilkunde. Springer Verlag, Berlin.

Deutsche Ztschr Thiermed.—Deutsche Zeitschrift für Thiermedizin und vergleichende Pathologie. Leipzig

Deutsche Ztschr Verdauungskr—Deutsche Zeitschrift für Verdauungs- und Stoffwechselkrankheiten einschliesslich Theorie and Praxis der Krankenernährung J A. Barth, Munich.

Deutsches Arch.klin.Med—Deutsches Archiv für klinische Medizin. J F Bergmann, Munich.

Deutsches med.J—Deutsches medizinisches Journal. [Continuation of Berl.med.Ztschr] Berlin.

Diabetes—Diabetes. American Diabetes Association New York.

Dis.Chest—Diseases of the Chest (including Spanish summaries) Chicago.

Dis.Nerv.System—Diseases of the Nervous System. Physicians Postgraduate Press, New York.

Docum. med. geog. et trop.—Documenta de medicina geographica et tropica. F.K.A.A. Lambrechts, Trom Rivierenlaan 268, Amsterdam Z.

Dominion M. Monthly—Dominion Medical Monthly. Toronto.

Duodecim: [Published in Nord med.]

East African M.J.—East African Medical Journal. Nairobi, Kenya Colony.

Edinburgh M.J.—Edinburgh Medical Journal. [Merged with Glasgow M.J. to form Scottish M.J.]

Electroencephalog. & Clin. Neurophysiol.—Electroencephalography and Clinical Neurophysiology. Montreal.

Encéphale—L'Encéphale: journal de neurologie, de psychiatrie et de médecine psychosomatique. [Supplément: L'Hygiène mentale.] G. Doin & Cie., Paris.

Endocrinology—Endocrinology. Charles C Thomas, Springfield, Ill.

Endokrinologie—Endokrinologie. J. A. Barth, Munich.

Epidemiol. Rep. League of Nations—Monthly Epidemiological Report of the Health Section of the Secretariat, League of Nations. Geneva. [Ceased publication.]

Epidemiol. & Vital Statist. Rep.—Epidemiological and Vital Statistics Report. World Health Organization, Geneva.

Epilepsia—Epilepsia. Amsterdam, Leipzig.

Ergebn. Anat. u. Entwicklungsgesch.—Ergebnisse der Anatomie und Entwicklungsgeschichte. Wiesbaden, Germany. [Part 2 of Anat. Hefte.] [Ceased publication 1944.]

Ergebn. ges. Tuberk.-Forsch.—Ergebnisse der gesamten Tuberkuloseforschung. G. Thieme, Stuttgart, Germany.

Ergebn. Hyg. Bakt.—Ergebnisse der Hygiene, Bakteriologie, Immunitätsforschung und experimentellen Therapie. Springer-Verlag, Berlin.

Ergebn. inn. Med. u. Kinderh.—Ergebnisse der inneren Medizin und Kinderheilkunde. Springer-Verlag, Berlin.

Eugenics Rev.—Eugenics Review. London.

Evolution méd.-chir.—Evolution médico-chirurgicale. Paris.

Exper. Med. & Surg.—Experimental Medicine and Surgery. S. Karger, Basel.

Exper. Parasitol.—Experimental Parasitology. Academic Press, New York.

Extrême-Orient méd.—L'Extrême-Orient médical. Institut du Cancer, Hanoi, Indochina.

Eye Ear Nose & Throat Month.—Eye, Ear, Nose & Throat Monthly. Professional Press, Inc., Chicago.

Farmaco—Il farmaco. Pavia, Italy.

Farmacoterap. actual—Farmacoterapia actual. Madrid.

Fed. Proc.—Federation Proceedings. Federation of American Societies for Experimental Biology. Washington, D.C.

Fertil. & Steril.—Fertility and Sterility. Paul B. Hoeber, New York.

Finska läk.-sällsk. handl.—Finska läkaresällskapets handlingar. [illegible], Helsinki.

Folia cardiol.—Folia cardiologica. Milan.

Folia clin. internac.—Folia clinica internacional. Barcelona.

Folia endocrinol.—Folia endocrinologica. Pisa, Italy.

Folia gynaec.—Folia gynaecologica. Pavia, Italy.

Folia haemat.—Folia haematologica. Geest & Portig, Leipzig.

Folia med.—Folia medica. [illegible], Naples, Italy.

Folia neuro-biol.—Folia neuro-biologica. Leipzig.

Folia oto-laryngol. orient.—[Continued as Acta oto-laryngol. orient.]

Folia serol.—Folia serologica. [Continued as Ztschr Chemotherap.]

Folia urol—Folia urologica. Leipzig

Food Res.—Food Research. Garrard Press, Champaign, Ill.

Förh.svenska läk.-sällsk.sammank.—Förhandlingar vid svenska läkaresällskapets sammankomster Stockholm. [Supplement to Hygiea, Stockholm.]

Fortschr Geb.Röntgenstrahlen—Fortschritte auf dem Gebiete der Röntgenstrahlen vereinigt mit Röntgenpraxis. G Thieme, Stuttgart, Germany

Fortschr.Neurol.Psychiat.—Fortschritte der Neurologie, Psychiatrie und ihrer Grenzgebiete. G Thieme, Stuttgart, Germany

Frankfurt.Ztschr.Path.—Frankfurter Zeitschrift für Pathologie. J F Bergmann, Munich.

Friuli med.—Il Friuli medico. Udine, Italy

Gac.méd., Lima—Gaceta médica. Lima, Peru.

Gac.méd.México—Gaceta médica de México. Mexico, D.F

Gann—Gann. The Japanese Journal of Cancer Research. Tokyo.

Gastroenterologia—Gastroenterologia. S Karger Basel, Switzerland.

Gastroenterology—Gastroenterology Williams & Wilkins Co., Baltimore.

Gastrol.polska—Gastrologja polska. Warsaw

Gaz.clín.—Gazeta clínica. São Paulo, Brazil.

Gaz.hebd.méd.—*Gazette hebdomadaire de médecine et de chirurgie. Paris.*

Gaz.hebd.sc.méd.Bordeaux—Gazette hebdomadaire des sciences médicales de Bordeaux. Bordeaux, France.

Gaz.lek.—Gazeta lekarska. Warsaw Poland.

Gaz.mal.inf.—Gazette des *maladies infantiles* et d'obstétrique. Paris.

Gaz.med.Bahia—Gazeta médica da Bahia. Bahia, Brazil.

Gaz.méd.belge—Gazette médicale belge. Liége.

Gaz.med.port.—Gazeta médica portuguesa. Lisbon.

Gazz.med.—Gazzetta medica (Medical Gazette) New York.

Gazz.med.napolet.—Gazzetta medica napoletana. Naples, Italy

Gazz.med.Torino—Gazzetta medica di Torino. Turin, Italy

Geburtsh.u.Frauenh.—Geburtshilfe und Frauenheilkunde. G Thieme, Stuttgart Germany

Gegen Tuberk.—Gegen die Tuberkulose. Berne, Switzerland.

Geneesk.gids—Geneeskundige gids. The Hague.

Geriatrics—Geriatrics. Minneapolis, Minn.

Ginek.polska—Ginekologja polska. Warsaw Poland.

Glor.Accad.med.Torino—Giornale della Accademia di medicina di Torino. G Capella, Turin, Italy

Glor batt.e immunol.—Giornale di batteriologia e immunologia. Ospedale Maria Vittoria, Turin, Italy

Glor.clin.med.—Giornale di clinica medica. Parma, Italy

Glor.ital.anestesiol.: [Continued as Minerva anestesiol.]

Glor.ital.chir—Giornale italiano di chirurgia. V Idelson, Naples.

Glor.ital.dermat.e sif—Giornale italiano di dermatologia e sifilologia Milan.

Glor.ital.oftal.—Giornale italiano di oftalmologia Clinica Oculistica Universitaria Florence.

Glor.mal.infett.e parassit.—Giornale di malattie infettive e parassitarie Milan, Ital

Glor.med.—Giornale di medicina. R. Clinica Medica-Policlinico, *Palermo, Italy*

Gior.med.ferrov.—Giornale di medicina ferroviaria. Prato, Italy

Gior.med.mil.—Giornale di medicina militare. Ministero della Difesa-Esercito, Rome

Gior.morfol.uomo.—Giornale per la morfologia dell' uomo e dei primati. Pavia, Italy

Gior.psichiat.e neuropat.—Giornale di psichiatria e di neuropatologia. Ospedale Psichiatrico Provinciale, Ferrara, Italy

Glasgow M.J.—Glasgow Medical Journal. [Merged with Edinburgh M.J. to become Scottish M.J.]

GP—GP. The American Academy of General Practice, Kansas City, Mo.

Graefes Arch.Ophth.—Albrecht von Graefe's Archiv für Ophthalmologie vereinigt mit Archiv für Augenheilkunde (Knapp-Schweigger Hess). Springer Verlag, Berlin.

Great Ormond St.J.—Great Ormond Street Journal. Being the Proceedings of the Hospital for Sick Children. H. K. Lewis & Co., London.

Grèce méd.—Grèce médicale. Athens.

Growth—Growth. Lankenau Hospital Research Institute. Philadelphia.

Guy's Hosp.Rep.—Guy's Hospital Reports. London.

Gynaec.helvet.—Gynaecologia helvetica. Geneva

Gynaecologia—Gynaecologia. S. Karger. Basel, Switzerland.

Gynäk.Rundschau—Gynäkologische Rundschau. Berlin. Vienna.

Gynéc.et obst.—Gynécologie et obstétrique. Masson et Cie. Paris.

Gyógyszerészi hetil.—Gyógyszerészi hetilap. Budapest.

Haematologica—Haematologica Archivio. Casella, Pavia, Italy

Harefuah—Harefuah. Medical Association of Israel, Tel-Aviv

Harofé Haivri: See Hebrew M.J.

Harvey Lect.—The Harvey Lectures. Charles C Thomas, Springfield, Ill.

Hautarzt—Der Hautarzt. Springer Verlag, Berlin.

Hawaii M.J.—Hawaii Medical Journal and Inter-Island Nurses' Bulletin. Honolulu.

Hebrew M.J.—Hebrew Medical Journal (Harofé Haivri). New York.

Helvet.chir.acta—Helvetica chirurgica acta. B. Schwabe & Co., Basel, Switzerland.

Helvet.med.acta—Helvetica medica acta. B. Schwabe & Co., Basel, Switzerland.

Helvet.paediat.acta—Helvetica paediatrica acta. B. Schwabe & Co., Basel, Switzerland.

Helvet.physiol.et pharmacol.acta—Helvetica physiologica et pharmacologica acta. B. Schwabe & Co., Basel, Switzerland.

Hereditas—Hereditas. R. Larsson, Lund, Sweden.

Hist.Acad.roy.sc.—Histoire de l'Académie royale des sciences. Paris.

Hist.méd.—Histoire de la médecine. Paris.

Hist.Soc.roy.méd.—Histoire de la Société royale de médecine, avec les mémoires de médecine et de physique médicale, tirés des registres de cette société. Paris.

Hoja tisiol.—Hoja tisiológica. Montevideo, Uruguay

Hora méd., Rio de Janeiro—Hora médica do Brasil. Rio de Janeiro.

Hospital, Rio de Janeiro—O Hospital. Rio de Janeiro.

Hospitals—Hospitals. American Hospital Association, Chicago.

Hospitalstid.: Published in Nord.med.]

Human Biol.—Human Biology. Wayne University Press, Detroit.

Hyg.Bl., Berlin—Hygienische Blätter. Berlin.

Hyg.gén.et appliq.—Hygiène générale et appliquée. Paris.

Hyg.ment.—L'Hygiène mentale. [Suppl. of L'Encéphale.] G. Doin & Cie., Paris.

Hyg.mod.—Hygiène moderne. Paris.
Hyg.Rundschau—Hygienische Rundschau. Berlin.
Hygea—Hygea. Karlsruhe, Germany
Hyghionomiki—Hyghionomiki. Athens.
Hygiea [Published in Nord.med.]
Hygiene—Hygiene. London.
Iberia méd.—Iberia médica. Madrid.
Idrol.e climat.—Idrologia e climatologia e la terapia fisica. Turin Florence Italy
Igiene mod.—Igiene moderna. Genoa, Italy
Igiene e san.pub—Igiene e sanità pubblica. Salerno, Italy
Igiene scuola—Igiene della scuola, revista mensile. Genoa, Italy
Igiene e vita—Igiene e la vita. Turin, Italy
Illinois M.J—Illinois Medical Journal. Chicago.
Incurabili—Incurabili. Naples.
Indépend.méd.—Indépendence médicale. Montreal.
Indian J.M.Res.—Indian Journal of Medical Research. Kanpur India.
Indian J.M.Sc.—Indian Journal of Medical Sciences. Bombay
Indian J.Med.—Indian Journal of Medicine. Calcutta.
Indian M.Gaz.—Indian Medical Gazette. Calcutta.
Indust.Bull.—Industrial Bulletin. Albany N Y
Indust.Med.—Industrial Medicine and Surgery Chicago.
Infortun.e traumatol.lavoro—Infortunistica e traumatologia del lavoro. *Edizioni Minerva medica*, Turin, Italy
Intercolon.M.J.Australasia—Intercolonial Medical Journal of Australasia. [Continued as Australian M.J]
Internat.Abstr.Surg: See Surg Gynec.& Obst.
Internat.Arch.Allergy—International Archives of Allergy and Applied Immunology S Karger Basel, Switzerland.
Internat.Centralbl.ges.Tuberk.-Forsch.—Internationales Centralblatt für die gesamte Tuberkulose-Forschung Würzburg Germany
Internat.J.Leprosy—International Journal of Leprosy Tulane University School of Medicine, New Orleans Ed. Office, Culion Leper Colony Palawan, Philippines.
Internat.J.Med.& Surg—International Journal of Medicine and Surgery [Continuation of Internat.J.Surg] New York.
Internat.J.Psycho-Analysis—International Journal of Psycho-Analysis. Baillière, Tindall & Cox, London.
Internat.J.Surg—International Journal of Surgery [Continued as Internat.J.Med.& Surg]
Internat.Monatschr.Erforsch.Alkoholismus—Internationale Monatsschrift zur Erforschung des Alkoholismus und Bekämpfung der Trinksitten. Basel, Switzerland.
Internat.Rev ges.Hydrobiol.u.Hydrograph.—Internationale Revue der gesamten Hydrobiologie und Hydrographie. Leipzig
Internat.Ztschr Vitaminforsch.—Internationale Zeitschrift für Vitaminforschung H Huber Berne, Switzerland.
Irish J.M.Sc.—Irish Journal of Medical Science. Dublin.
Istanbul Contrib Clin.Sc.—Istanbul Contribution to Clinical Science Istanbul.
Italia san.—Italia sanitaria. Rome.

J.A.M.A.—Journal of the American Medical Association. Chicago.
J.Abnorm.& Social Psychol.—Journal of Abnormal and Social Psychology Albany N.Y.; Washington, D.C.
J.Allergy—Journal of Allergy C.V. Mosby Co., St. Louis.
J.Am.Dent.A.—Journal of the American Dental Association. Chicago.
J.Am.Dietet.A.—Journal of the American Dietetic Association. Chicago.
J.Am.Geriatrics Soc.—Journal of the American Geriatrics Society Williams & Wilkins Co., Baltimore.
J.Am.M.Women's A.—Journal of the American Medical Women's Association. New York.
J.Am.Pharm.A. (Scient.Ed.)—Journal of the American Pharmaceutical Association (Scientific Edition). Washington, D.C.
J.Am.Soc.Heat.& Ventil.Engin.—Journal of the American Society of Heating and Ventilating Engineers. New York.
J.Am.Soc.Psych.Research—Journal of the American Society for Psychical Research. New York.
J.Am.Vet.M.A.—Journal of the American Veterinary Medical Association. Chicago.
J.Anat.—Journal of Anatomy Cambridge University Press, London.
J.anat.et physiol.—Journal de l'anatomie et de la physiologie normales et pathologiques de l'homme et des animaux. Paris.
J.Appl.Physiol.—Journal of Applied Physiology Washington, D.C.
J.Arkansas M.Soc.—Journal of the Arkansas Medical Society Fort Smith.
J.Aviation Med.—Journal of Aviation Medicine. Bruce Publishing Co., St. Paul, Minn
J.Bact.—Journal of Bacteriology Williams & Wilkins Co., Baltimore.
J.belge urol.—Journal belge d'urologie. P. van den Branden, Ixelles-Brussels.
J.Biochem.—Journal of Biochemistry Tokyo University Bunkyo-ku, Tokyo.
J.Biol.Chem.—Journal of Biological Chemistry American Society of Biological Chemists, Inc Baltimore.
J.Biol.Photographic A.—Journal of the Biological Photographic Association, c/o Pavelle Color Inc., 533 W. 57th St., New York 19
J.Bone & Joint Surg.—Journal of Bone and Joint Surgery Boston, London.
J.brasil.psiquiat.—Jornal brasileiro de psiquiatria. Instituto de psiquiatria da Universidade do Brasil, Rio de Janeiro.
J.Cell.& Comp.Physiol.—Journal of Cellular and Comparative Physiology Wistar Institute, Philadelphia.
J.Ceylon Br.Brit. M.A.: [Continued as Ceylon M.J.]
J.Chem.Soc.London—Journal of the Chemical Society of London.
J.chim.phys.—Journal de chimie physique. Paris.
J.Chir.—Journal de chirurgie. Masson et Cie., Paris.
J.Chir.u.Augenh.—Journal der Chirurgie und Augenheilkunde. Berlin.
J.Clin.Endocrinol.—Journal of Clinical Endocrinology and Metabolism. Charles C Thomas, Springfield, Ill.
J.Clin.& Exper.Psychopath.—Journal of Clinical and Experimental Psychopathology MD Publications, New York.
J.Clin.Invest.—Journal of Clinical Investigation. / Presbyterian Hospital, New York.
J.Clin.Nutrition—Journal of Clinical Nutrition. Allentown, Pa.
J.Clin.Path.—Journal of Clinical Pathology British Medical Association, London.
J.Comp.Neurol.—Journal of Comparative Neurology Wistar Institute, Philadelphia.

Hyg.mod.—Hygiène moderne. Paris.

Hyg.Rundschau—Hygienische Rundschau. Berlin.

Hygea—Hygea. Karlsruhe, Germany

Hyghionomiki—Hyghionomiki. Athens.

Hygiea: [Published in Nord.med.]

Hygiene—Hygiene. London.

Iberia méd.—Iberia médica. Madrid.

Idrol.e climat.—Idrologia e climatologia e la terapia fisica. Turin Florence, Italy

Igiene mod.—Igiene moderna. Genoa, Italy

Igiene e san.pub.—Igiene e sanità pubblica. Salerno, Italy

Igiene scuola—Igiene della scuola, revista mensile. Genoa, Italy

Igiene e vita—Igiene e la vita. Turin, Italy

Illinois M.J—Illinois Medical Journal. Chicago.

Incurabili—Incurabili. Naples.

Indépend.méd.—Indépendence médicale. Montreal.

Indian J.M.Res.—Indian Journal of Medical Research. Kanpur India.

Indian J.M.Sc.—Indian Journal of Medical Sciences. Bombay

Indian J.Med.—Indian Journal of Medicine. Calcutta.

Indian M Gaz.—Indian Medical Gazette. Calcutta.

Indust.Bull.—Industrial Bulletin. Albany N Y

Indust.Med.—Industrial Medicine and Surgery Chicago.

Infortun.e traumatol.lavoro—Infortunistica e traumatologia del lavoro. Edizioni Minerva medica, Turin, Italy

Intercolon.M.J.Australasia—Intercolonial Medical Journal of Australasia. [Continued as Australian M.J]

Internat.Abstr.Surg: See Surg Gynec.& Obst.

Internat.Arch.Allergy—International Archives of Allergy and Applied Immunology S. Karger Basel, Switzerland.

Internat.Centralbl.ges.Tuberk. Forsch.—Internationales Centralblatt für die gesamte Tuberkulose-Forschung Würzburg Germany

Internat.J.Leprosy—International Journal of Leprosy Tulane University School of Medicine, New Orleans Ed. Office, Culion Leper Colony Palawan, Philippines.

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Internat.Rev ges.Hydrobiol.u.Hydrograph.—Internationale Revue der gesamten Hydrobiologie und Hydrographie. Leipzig

Internat.Ztschr Vitaminforsch.—Internationale Zeitschrift für Vitaminforschung H Huber Berne, Switzerland.

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J.anat.et physiol.—Journal de l'anatomie et de la physiologie normales et pathologiques de l'homme et des animaux. Paris.
J.Appl.Physiol.—Journal of Applied Physiology. Washington, D.C.
J.Arkansas M.Soc.—Journal of the Arkansas Medical Society. Fort Smith.
J.Aviation Med.—Journal of Aviation Medicine. Bruce Publishing Co., St. Paul, Minn.
J.Bact.—Journal of Bacteriology. Williams & Wilkins Co., Baltimore.
J.belge urol.—Journal belge d'urologie. F. van den Branden, Ixelles-Brussels.
J.Biochem.—Journal of Biochemistry. Tokyo University. Bunkyo-ku, Tokyo.
J.Biol.Chem.—Journal of Biological Chemistry. American Society of Biological Chemists, Inc. Baltimore.
J.Biol.Photographic A.—Journal of the Biological Photographic Association. c/o Pavelle Color Inc. 533 W. 57th St., New York 19.
J.Bone & Joint Surg.—Journal of Bone and Joint Surgery. Boston. London.
J.brasil.psiquiat.—Jornal brasileiro de psiquiatria. Instituto de psiquiatria da Universidade do Brasil, Rio de Janeiro.
J.Cell.& Comp.Physiol.—Journal of Cellular and Comparative Physiology. Wistar Institute, Philadelphia.
J.Ceylon Br.Brit. M.A. [Continued as Ceylon M.J.]
J.Chem.Soc.London—Journal of the Chemical Society of London.
J.chim.phys.—Journal de chimie physique. Paris.
J.Chir.—Journal de chirurgie. Masson et Cie., Paris.
J.Chir.u.Augenh.—Journal der Chirurgie und Augenheilkunde. Berlin.
J.Clin.Endocrinol.—Journal of Clinical Endocrinology and Metabolism. Charles C Thomas, Springfield, Ill.
J.Clin.& Exper.Psychopath.—Journal of Clinical and Experimental Psychopathology. MD Publications, New York.
J.Clin.Invest.—Journal of Clinical Investigation. c/o Presbyterian Hospital, New York.
J.Clin.Nutrition—Journal of Clinical Nutrition. Allentown, Pa.
J.Clin.Path.—Journal of Clinical Pathology. British Medical Association, London.
J.Comp.Neurol.—Journal of Comparative Neurology. Wistar Institute, Philadelphia.

J.M.A.Alabama—Journal of the Medical Association of Alabama. Montgomery

J.M.A.Georgia—Journal of the Medical Association of Georgia. Atlanta.

J.M.Educ.—Journal of Medical Education. Chicago.

J.M.Soc.New Jersey—Journal of the Medical Society of New Jersey Trenton.

J.Maine M.A.—Journal of the Maine Medical Association. Portland.

J.méd.Bordeaux—Journal de médecine de Bordeaux et du Sud-Ouest. Bordeaux, France

J.méd.chir.et pharmacol.—Journal de médecine, de chirurgie et de pharmacologie. Brussels.

J.méd.Lyon—Le journal de médecine de Lyon. Dr Paul Malot, 52 rue Victor Hugo, Lyon, France.

J.Ment.Path.—Journal of Mental Pathology New York.

J.Ment.Sc.—Journal of Mental Science. J A. Churchill, London.

J.Metab.Research.—Journal of Metabolic Research. Morristown, N.J.

J.Michigan M.Soc.—Journal of Michigan State Medical Society [Ceased publication.]

J.Missouri M.A.: [Continued as Missouri Med.]

J.Morphol.—Journal of Morphology Wistar Institute, Philadelphia.

J.Mt.Sinai Hosp.—Journal of the Mount Sinai Hospital. New York.

J.Nat.Cancer Inst.—Journal of the National Cancer Institute. Superintendent of Documents, Washington, D.C.

J.Nat.M.A.—Journal of the National Medical Association. New York.

J Nat.Malaria Soc.—[Merged with Am.J.Trop.Med.]

J.Nerv.& Ment.Dis.—Journal of Nervous and Mental Disease. New York.

J neurol.et hypnol.—Journal de neurologie et d'hypnologie. Paris.

J.Neurol.Neurosurg.& Psychiat.—Journal of Neurology Neurosurgery and Psychiatry British Medical Association, London. [American agent—Grune & Stratton, New York.]

J.Neuropath.& Exper.Neurol.—Journal of Neuropathology and Experimental Neurology New York.

J.Neurophysiol.—Journal of Neurophysiology Charles C Thomas, Springfield, Ill.

J Neurosurg —Journal of Neurosurgery Charles C Thomas, Springfield, Ill.

J.New Mexico M.Soc.—Journal of the New Mexico Medical Society Albuquerque.

J.Nutrition—The Journal of Nutrition. Wistar Institute, Philadelphia.

J Obst.& Gynaec.Brit.Emp.—Journal of Obstetrics and Gynaecology of the British Empire. London.

J.Oklahoma M.A.—Journal of Oklahoma State Medical Association. Oklahoma City

J Omaha Mid-West Clin.Soc.—Journal of the Omaha Mid-West Clinical Society Omaha, Nebraska.

J Oral Surg —Journal of Oral Surgery American Dental Association, Chicago.

J Organotherapy—Journal of Organotherapy New York.

J Outdoor Life—Journal of Outdoor Life. New York.

J.Parasitol.—Journal of Parasitology Colorado Springs, Colo.

J.Path.& Bact.—Journal of Pathology and Bacteriology Oliver & Boyd, London.

J.Pediat.—Journal of Pediatrics. C. V. Mosby Co St. Louis.

J pediat., Rio de Janeiro—Jornal de pediatria. Rio de Janeiro.

J pharm.et chim.—Journal de pharmacie et de chimie. Paris.

J.Pharm.& Pharmacol.—Journal of Pharmacy and Pharmacology London.

J Comp.Path.& Therap—Journal of Comparative Pathology and Therapeutics. University Press, Liverpool, England.

J Comp.&Physiol.Psychol.—Journal of Comparative and Physiological Psychology Baltimore.

J.Dent.Res.—Journal of Dental Research. C. V Mosby Co., St. Louis.

J.Endocrinol.—Journal of Endocrinology Cambridge University Press, London.

J.Exper Med.—Journal of Experimental Medicine. Rockefeller Institute for Medical Research, New York.

J.Fac.Med., Baghdad—Journal of the Faculty of Medicine. Baghdad, Iraq

J.Fac.Radiologists—Journal of the Faculty of Radiologists. John Wright & Sons, Bristol, England. [American agent—Williams & Wilkins Co., Baltimore.]

J Florida M.A.—Journal of the Florida Medical Association. Jacksonville.

J.franc.méd.et chir.thorac.—Journal français de médecine et chirurgie thoraciques. G Doin & Cie., Paris.

J Gen.Physiol.—Journal of General Physiology Rockefeller Institute for Medical Research, New York.

J Genetics—Journal of Genetics. Cambridge University Press, London.

J Gerontol.—Journal of Gerontology St. Louis.

J.Helminthol.—Journal of Helminthology London School of Hygiene and Tropical Medicine.

J.Hemat.: See Blood.

J.Hered.—Journal of Heredity Washington, D C.

J.Hist.Med.& Allied Sc.—Journal of the History of Medicine and Allied Sciences. New Haven, Conn.

J.Histochem.—Journal of Histochemistry and Cytochemistry Williams & Wilkins Co., Baltimore.

J.Hyg—Journal of Hygiene. Cambridge University Press, London.

J.Immunol.—Journal of Immunology Williams & Wilkins Co., Baltimore.

J.Indian M.A.—Journal of the Indian Medical Association. Calcutta.

J.Indiana M.A.—Journal of the Indiana State Medical Association. Indianapolis.

J.Infect.Dis.—Journal of Infectious Diseases. University of Chicago Press, Chicago.

J.internat.chir—Journal international de chirurgie. Masson et Cie., Brussels.

J.Internat.Coll.Surgeons—Journal of the International College of Surgeons. Chicago.

J.Invest.Dermat.—Journal of Investigative Dermatology Williams & Wilkins Co., Baltimore.

J.Iowa M.Soc.—Journal of the Iowa State Medical Society Des Moines.

J.Irish M.A.—Journal of the Irish Medical Association. Dublin.

J.Kansas M.Soc.—Journal of the Kansas Medical Society Topeka.

J.Kentucky M.A.—Journal of the Kentucky State Medical Association. Louisville.

J.Kinderkr—Journal für Kinderkrankheiten. Berlin.

J.Lab.& Clin.Med.—Journal of Laboratory and Clinical Medicine. C. V Mosby Co., St. Louis.

J.Laryng.& Otol.—Journal of Laryngology and Otology Headley Brothers, London. [American agent—Hafner Publishing Co., New York.]

J.Louisiana M.Soc.—Journal of the Louisiana State Medical Society [Continuation of New Orleans M & S.J] New Orleans.

J.Louisiana State Univ School Med.—Journal of the Louisiana State University School of Medicine [Ceased publication.]

Jahresb.Fortschr.ges.Med.—Jahresbericht über die Fortschritte der gesamten Medizin. Erlangen, Germany

Jahresb.Fortschr.Thierchem.—Jahresbericht über die Fortschritte der Thierchemie (Maly's). Wiesbaden, Germany

Jahresb.ges.Ophth.—Jahresbericht über die gesamte Ophthalmologie. Berlin.

Jahresb.Leistung.ges.Med.—Jahresbericht über die Leistungen und Fortschritte der gesamten Medizin. Berlin.

Jap.J.Exper.Med.—Japanese Journal of Experimental Medicine. University of Tokyo.

Jap.J.M.Sc.& Biol.—Japanese Journal of Medical Science and Biology. [Continuation of Jap.M.J.] National Institute of Health, Tokyo.

Japan M.World—Japan Medical World. Tokyo.

Japan.Ztschr.Dermat.u.Urol.—Japanische Zeitschrift für Dermatologie und Urologie. Tokyo.

Japan.Ztschr.Verdauungs-Krankh.—Japanische Zeitschrift für Verdauungs-krankheiten. Tokyo.

Journ.de praticiens-continental franç.: See Arch.mal.app.digest.

Journal-Lancet—Journal-Lancet. Minneapolis, Minn.

Kinderärztl.Praxis—Kinderärztliche Praxis. G. Thieme, Stuttgart, Germany

Kindertuberk.—Kindertuberkulose. Munich.

Kitasato Arch.Exper.Med.—Kitasato Archives of Experimental Medicine. Tokyo.

Klin.Beitr.Gynäk.—Klinische Beiträge zur Gynäkologie. Breslau, Germany

Klin.med.—Klinicheskaya meditsina. Moscow

Klin.Monatsbl.Augenh.—Klinische Monatsblätter für Augenheilkunde und für augenärztliche Fortbildung. F. Enke, Stuttgart, Germany

Klin.-therap.Wchnschr.—Klinisch-therapeutische Wochenschrift. Vienna, Berlin.

Klin.Wchnschr.—Klinische Wochenschrift. Springer Verlag, Berlin.

Krebsarzt—Der Krebsarzt. Urban & Schwarzenberg, Munich.

Kresge Eye Inst.Bull.—Kresge Eye Institute Bulletin. Detroit.

Lab.Invest.—Laboratory Investigation. Paul B. Hoeber, New York.

Laboratorio—Laboratorio. Análisis clínicos-bacteriología-inmunología-parasitología-hematología-anatomía-patológica-química clínica. Granada, Spain.

Lahey Clin.Bull.—The Lahey Clinic Bulletin. Boston.

Lancet—Lancet. London.

Langenbecks Arch.klin.Chir.: See Arch.klin.Chir.

Laryngoscope—Laryngoscope. St. Louis.

Lav.Ist.anat.e istol.pat.—Lavori dell'Istituto di anatomia e istologia patologica della Università degli studi di Perugia. Perugia, Italy

Lav.neuropsichiat.—Il lavoro neuropsichiatrico. Rome.

Laval méd.—Laval médical. Laval University, Quebec

Leprosy Rev.—Leprosy Review. The British Empire Leprosy Relief Association, London.

Lettura oftal.—Lettura oftalmologica. Pistoia, Italy

Leucocyte—Leucocyte. Detroit.

Liebigs Annalen: See Ann.Chem.

Lille chir.—Lille chirurgical. Lille, France.

Lotta contro tuberc.—Lotta contro la tubercolosi. Rome.

Lumen—Lumen. Agrupación católica universitaria. Havana, Cuba.

J.Pharmacol.& Exper Therap—Journal of Pharmacology and Experimental Therapeutics. Williams & Wilkins Co. Baltimore.

J.Philippine M.A.—Journal of the Philippine Medical Association. Philippine General Hospital, Manila.

J.Physiol—Journal of Physiology Cambridge University Press, London.

J physiol expér—Journal de physiologie expérimentale et pathologique Paris.

J physiol., Paris—Journal de physiologie. Masson et Cie., Paris.

J pract.Arznk.u.Wundarznk.—Journal der practischen Arzenykunde und Wundarzneykunst (Hufeland's) Jena, Germany Berlin.

J pract.Heilk.—Journal der practischen Heilkunde Berlin.

J.radiol.et électrol.—Journal de radiologie et d électrologie & Archives d'électricité médicale. Masson et Cie. Paris.

J.Röntg.Soc.—Journal of the Röntgen Society London.

J.Roy.Anthrop.Inst. Great Britain & Ireland—Journal of the Royal Anthropological Institute of Great Britain and Ireland. London

J.Roy.Army M.Corps—Journal of the Royal Army Medical Corps. Royal Army Medical College, London.

J.Roy.Egyptian M.A.—Journal of the Royal Egyptian Medical Association. Cairo.

J.Roy.Inst.Pub.Health & Hyg—Journal of the Royal Institute of Public Health and Hygiene Incorporating the Journal of State Medicine, the Journal of the Institute of Hygiene, and Quiet." London.

J.Roy.Micr.Soc.—Journal of the Royal Microscopical Society London.

J Roy.Nav.M.Serv—Journal of the Royal Naval Medical Service. Royal Naval Hospital, Gosport, England.

J.Roy.San.Inst.—Journal of the Royal Sanitary Institute. London.

J.sc.méd.Lille—Journal des sciences médicales de Lille Lille, France.

J.School Health—Journal of School Health. Chicago.

J.Sexol.& Psychanal.—Journal of Sexology and Psychanalysis. New York

J.Sociol.Med.—Journal of Sociologic Medicine. Easton, Pa.

J.South Carolina M.A.—Journal of South Carolina Medical Association. Florence.

J.Speech & Hearing Disorders—Journal of Speech and Hearing Disorders. Wayne University Detroit.

J.Student A.M.A.—Journal of the Student American Medical Association. Chicago.

J Tennessee M.A.—Journal of Tennessee State Medical Association. Nashville

J Thoracic Surg—Journal of Thoracic Surgery C. V Mosby Co., St. Louis.

J Trop.Med.—Journal of Tropical Medicine and Hygiene. Staples Press, London.

J Urol.—Journal of Urology Williams & Wilkins Co., Baltimore.

J Urol., Paris—Journal d'urologie médicale et chirurgicale. Masson et Cie. Paris.

J.Zahnh.—Journal für Zahnheilkunde. Breslau, Germany Berlin.

Jahrb.Hamb.Staatskrankenanst.—Jahrbücher der Hamburgischen Staatskrankenanstalten. *Leipzig Hamburg, Germany*

Jahrb.Mil.-Ärzte.—Jahrbuch für Militär Ärzte. Vienna

Jahrb.pract.Med.—Jahrbuch der practischen Medizin. Berlin.

Jahrb.prakt.Heilk.—Jahrbucher für praktische Heilkunde. Tübingen, Germany

Jahrb.sex.Zwischenstufen—Jahrbuch für sexuelle Zwischenstufen. Leipzig

Jahresb.Fortschr Geb.Chir—Jahresbericht über die Fortschritte auf dem Gebiete der Chirurgie. Wiesbaden, Germany

Jahresb.Fortschr.ges.Med.—Jahresbericht über die Fortschritte der gesammten Medizin. Erlangen, Germany

Jahresb.Fortschr.Thierchem.—Jahresbericht über die Fortschritte der Thierchemie (Maly's). Wiesbaden, Germany

Jahresb.ges.Ophth.—Jahresbericht über die gesamte Ophthalmologie. Berlin.

Jahresb.Leistung.ges.Med.—Jahresbericht über die Leistungen und Fortschritte der gesammten Medizin. Berlin.

Jap.J.Exper.Med.—Japanese Journal of Experimental Medicine. University of Tokyo.

Jap.J.M.Sc.& Biol.—Japanese Journal of Medical Science and Biology. (Continuation of Jap.M.J.) National Institute of Health, Tokyo.

Japan M.World—Japan Medical World. Tokyo.

Japan.Ztschr.Dermat.u.Urol.—Japanische Zeitschrift für Dermatologie und Urologie. Tokyo.

Japan.Ztschr.Verdauungs-Krankh.—Japanische Zeitschrift für Verdauungs-Krankheiten. Tokyo.

Journ.franç.gastro-entérol.franç.: See Arch.mal.app.digest.

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Klin.Wchnschr.—Klinische Wochenschrift. Springer Verlag, Berlin.

Krebsarzt—Der Krebsarzt. Urban & Schwarzenberg, Munich.

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Langenbecks Arch.klin.Chir.: See Arch.klin.Chir.

Laryngoscope—Laryngoscope. St. Louis.

Lav.Ist.anat.e istol.pat.—Lavori dell'Istituto di anatomia e istologia patologica della Università degli studi di Perugia. Perugia, Italy

Lav.neuropsichiat.—Il lavoro neuropsichiatrico. Rome.

Laval méd.—Laval médical. Laval University. Quebec

Leprosy Rev.—Leprosy Review. The British Empire Leprosy Relief Association, London.

Lettera oftal.—Lettera oftalmologica. Pistoia, Italy

Leucocyte—Leucocyte. Detroit.

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Lotta contro tuberc.—Lotta contro la tubercolosi. Rome.

Lucerna—Lucerna. Agrupación católica universitaria. Havana, Cuba.

Lyon chir.—Lyon chirurgical. Masson et Cie., Paris.
M.Ann.District of Columbia—Medical Annals of the District of Columbia. Washington.
M.Arts & Sc.—Medical Arts and Sciences. Washington, D.C.
M.& Biol.Illus.—Medical and Biological Illustration. British Medical Association. London.
M.Bull.: [Continued as Med.Indust.]
M.Bull. European Command: [Continued as M.Bull.U.S. Army Europe.]
M.Bull.U.S.Army Europe—Medical Bulletin of the U.S. Army Europe. APO 403, c/o Postmaster New York.
M.Bull.U.S. Army Far East—Medical Bulletin of the U.S. Army Far East. APO 343, c/o Postmaster San Francisco
M.Chron.—Medical Chronicle. Manchester England.
M.Clin.North America—Medical Clinics of North America. W. B. Saunders Co., Philadelphia.
M.J. Australia—Medical Journal of Australia. Sydney
M.J.Malaya—Medical Journal of Malaya. Singapore.
M.Radiog.& Photog.—Medical Radiography and Photography. Eastman Kodak Co., Rochester N.Y.
M.Rec.& Ann.—Medical Record and Annals. Houston, Texas.
M.Times—Medical Times. Incorporating the Long Island Medical Journal and Western Medical Times. Romaine Pierson Publishers, Inc., East Stroudsburg Pa.
Maandschr.kindergeneesk.—Maandschrift voor kindergeneeskunde. H. E. Stenfert Kroese's Uitgevers-Maatschappij N.V., Leiden, Netherlands.
Madras J.M.Sc.—Madras Journal of Medical Science. Madras, India.
Mag.ges.Thierh.—Magazin für die gesammte Thierheilkunde. [Continued as Arch. wissensch.u.prakt.Thierh.]
Malariologia—Malariologia. Naples, Italy
Margin.dermatol.: See Riv.crit.clin.med.
Margin.otolaryng.: See Riv.crit.clin.med.
Marseille-méd.—Marseille-médical. Marseille, France.
Maryland M.J.—Maryland State Medical Journal. Baltimore.
Mayo Clin.& Mayo Found.Collect.Papers: See Collect.Papers Mayo Clin.
Mayo Clin.Proc.Staff Meet.: See Proc.Staff Meet.Mayo Clin.
Med.arkh.—Meditsinski arkhiv. Sarajevo, Yugoslavia.
Med.Bibl.prakt.Ärzte—Medizinische Bibliothek für praktische Ärzte. Leipzig
Med.e chir.med.prat.—Medicina e chirurgia del medico pratico. Naples, Italy
Med.y cir., Bogotá—Medicina y cirugía. Bogotá, Colombia.
Med.clin.—Medicina clínica. Barcelona, Spain.
Med.colon.—La medicina colonial. Ciudad Universitaria, Madrid.
Med.contemp.—A medicina contemporânea. Livraria Rodrigues, Lisbon, Portugal.
Med.españ.—Medicina española. Valencia.
Med.Illus.—Medicine Illustrated. [Continued as Brit.J.Clin.Pract.]
Med.Indust.—Medicine for Industry (The Medical Bulletin). [Continuation of M.Bull.] New York
Méd.Inf.—La médecine infantile. Paris.
Méd.internat.—Médecine internationale. Paris.
Med.ital.—Medicina italiana. Milan.

Med.latina—Medicina latina. Havana, Cuba.
Med.lavoro—La medicina del lavoro. Milan.
Med.-Leg. J.—Medico-Legal Journal. New York.
Méd.mod.—Médecine moderne. Paris.
Med.Monatschr.—Medizinische Monatsschrift. Wissenschaftliche Verlagsgesellschaft, Stuttgart, Germany
Med.obozr.—Meditsinskoye obozreniye. Moscow
Méd.prat.—Médecine pratique. Paris.
Med.rev. Bergen [Published in Nord.med.]
Med.Rev.Haarlem—Medische Revue. Haarlem, Netherlands.
Méd.trav.—La médecine du travail. Lyon, France.
Méd.trop.—Médecine tropicale. Marseilles, France
Med.Weekbl.—Medisch Weekblad, voor Noord- en Zuid-Nederland. Amsterdam.
Med.Welt [Continued as Med.Klinische.]
Médecin stomatol.—Médecin stomatologiste. Paris.
Medicina, Buenos Aires—Medicina. Buenos Aires.
Medicina, Madrid—Medicina. Madrid.
Medicina, México—Medicina. Mexico, D.F.
Medicine—Medicine. Williams & Wilkins Co. Baltimore.
Medizinische—Die Medizinische. [Continuation of Med.Welt.] F. K. Schattauer Verlag, Stuttgart, Germany
Mém.Acad.chir.—Mémoires de l'Académie de chirurgie. Masson et Cie., Paris.
Mém.Acad.imp.sc.St.Petersbourg—Mémoires de l'Académie impériale des sciences de St. Petersburg. Leningrad
Mem.Accad.sc.Ist.Bologna—Memorie della reale Accademia delle scienze dell' Istituto di Bologna. Bologna, Italy
Mém.Fac.méd.Paris—Mémoires de la Faculté de médecine de Paris, et de la Société établie dans son sein. Paris.
Mem.Inst.Butantan—Memorias do Instituto Butantan. (With English abstracts.) São Paulo, Brazil
Mem.Inst.Oswaldo Cruz—Memorias do Instituto Oswaldo Cruz. Rio de Janeiro.
Ment. Hyg.—Mental Hygiene. New York.
Metabolism—Metabolism. Clinical and Experimental. Grune & Stratton, New York.
Mil. Surgeon—Military Surgeon. Washington, D.C.
Milbank Mem. Fund Quart.—Milbank Memorial Fund Quarterly. New York.
Minerva anestesiol.—Minerva anestesiologica. [Continuation of Gior.ital.anestesiol.] Edizioni Minerva medica, Turin, Italy
Minerva chir.—Minerva chirurgica. Edizioni Minerva medica, Turin, Italy
Minerva dermat.—Minerva dermatologica. Edizioni Minerva medica, Turin, Italy
Minerva ginec.—Minerva ginecologica. Edizioni Minerva medica, Turin, Italy
Minerva med.—Minerva medica. Edizioni Minerva medica, Turin, Italy
Minerva medicoleg.—Minerva medicolegale. Edizioni Minerva medica, Turin, Italy
Minerva ortop.—Minerva ortopedica. Edizioni Minerva medica, Turin, Italy
Minerva otorinolaring.—Minerva otorinolaringologica. Edizioni Minerva medica, Turin, Italy
Minerva pediat.—Minerva pediatrica. Edizioni Minerva medica. Turin, Italy
Minnesota Med.—Minnesota Medicine. St. Paul.

Misión estud.pat.reg.argent.—Misión de estudios de patología regional argentina. Ministerio de educación, Universidad de Buenos Aires, Buenos Aires.

Mississippi Doctor—Mississippi Doctor Booneville.

Mississippi Valley M.J—Mississippi Valley Medical Journal. (Incorporating the Radiologic Review) Quincy Ill.

Missouri Med.—Missouri Medicine. [*Continuation of J.Missouri M A*] St. Louis.

Mitt.anthrop.Gesellsch.Wien—Mitteilung der anthropologischen Gesellschaft in Wien. Vienna.

Mitt.Gesellsch.inn.Med.u.Kinderh.—Mitteilungen der Gesellschaft fur innere Medizin und Kinderheilkunde. Vienna.

Mitt.gynaek.Klin.O.Engström in Helsingfors—Mitteilungen aus der gynaekologischen Klinik des Prof. Dr Otto Engström in Helsingfors. Berlin.

Mitt.med.Fak.k.Univ.Kyushu Fukuoka—Mitteilungen aus der medizinischen Fakultät der kaiserlichen Universität Kyushu Fukuoka, Japan Kyushu.

Mitt.med.Gesellsch.Osaka—Mitteilungen der medizinischen Gesellschaft zu Osaka. Osaka, Japan.

Mitth.thierärztl.Praxis preuss.Staate—Mittheilungen aus der thierärztlichen Praxis im preussischen Staate. [Suppl. to Arch.wissensch.u.prakt.Thierh.] Berlin

Mod.Concepts Cardiovas.Dis.—*Modern Concepts of Cardiovascular Disease.* American Heart Association, New York.

Mod.Hosp—Modern Hospital. Chicago.

Mois méd.-chir—Mois médico-chirurgical. Paris.

Monatsh prakt.Dermat.—Monatshefte für praktische Dermatologie. [Continued as Dermat.Wchnschr]

Monatsh.prakt.Thierh.—Monatshefte für praktische Thierheilkunde. Stuttgart, Germany

Monatschr Kinderh.—Monatsschrift für Kinderheilkunde Springer Verlag Berlin.

Monatschr.Krim.-psychol.—Monatsschrift fur Kriminal-psychologie und Strafrechtsreform. Heidelberg Germany

Monatschr ungar.Med.—Monatsschrift ungarischer Mediziner Budapest.

Monatschr.Psychiat.u.Neurol.—Monatsschrift fur Psychiatrie und Neurologie. S. Karger Basel, Switzerland.

Monatschr Unfallh.—Monatsschrift für Unfallheilkunde und Versicherungsmedizin Springer Verlag Berlin.

Monit.zool.ital.—*Monitore zoologico italiano* Siena Florence, Italy

Monogr.rev.españ.reum. See Rev españ.reum.

Month.Bull.Min.Health—Monthly Bulletin of the Ministry of Health and Public Health Laboratory Service. London.

Month.Rev.New York State Dept.Labor—Monthly Review of the Division of Industrial Hygiene, New York State Department of Labor New York

Monthly Cycl.Pract.Med.—Monthly Cyclopaedia of Practical Medicine Philadelphia

Montpellier méd.—Montpellier médical. Montpellier France.

Morgagni—Morgagni. Milan, Italy [Ceased publication]

Movimento med.—Movimento médico. Rio de Janeiro.

München.med.Wchnschr—Münchener medizinische Wochenschrift. Munich.

Mycopath.et mycol.appl.—Mycopathologie et mycologia applicata The Hague.

Nature, London—Nature. Macmillan & Co., Ltd London.

Naunyn-Schmiedebergs Arch.exper.P th u.Pharmakol. See Arch.exper Path u.Pharmakol.

Nebraska M. J.—Nebraska State Medical Journal. Lincoln.

Nederl. tijdschr. geneesk.—Nederlandsch tijdschrift voor geneeskunde. Haarlem, Netherlands.

Nervenarzt—Der Nervenarzt. Springer Verlag, Berlin.

Neurobiologia—Neurobiologia. Recife, Brazil.

Neurol. Centralbl.—Neurologisches Centralblatt. Leipzig

Neurology—Neurology. Minneapolis, Minn.

Neuropsiquiatría—Neuropsiquiatría. Hospicio de las Mercedes, Buenos Aires.

Neurotherapie—Neurotherapie. Amsterdam.

Nevropat. i psikhiat. [Continued as Zhur. nevropat. i psikhiat.]

New England J. Med.—New England Journal of Medicine. Boston.

New Orleans M. & S. J. [Continued as J. Louisiana M. Soc.]

New York J. Med.—New York State Journal of Medicine. New York.

New Zealand M. J.—New Zealand Medical Journal. Wellington.

Nipiologia—Nipiologia. Naples, Italy

Nippon Ganka Gakkai Zasshi—Nippon Ganka Gakkai Zasshi (Gazette of the Society of Oculists of Japan). Tokyo.

Nord. hyg. tidskr.—Nordisk hygienisk tidskrift. Stockholm.

Nord. med.—Nordisk medicin. (Including Hospitalstidende, Duodecim, Norsk magazin for laegevidenskapen, Medicinsk revue, Hygiea, Svenska läkaresällskapets förhandlingar, Nordisk medicinsk tidskrift.) Stockholm.

Nord. med. ark.—Nordiskt medicinskt arkiv. [Continued as Acta chir. scandinav. and Acta med. scandinav.]

Nord. med. tidskr. [Published in Nord. med.]

Nord. ophth. tidskr.—Nordisk ophthalmologisk tidsskrift. Copenhagen.

Normandie méd.—Normandie médicale. Rouen, France.

Norsk mag. f. laegevidensk. [Published in Nord. med.]

Norsk tidsskr. mil.-med.—Norsk tidsskrift for militaer-medicin. Oslo.

North Carolina M. J.—North Carolina Medical Journal. Winston-Salem.

Northwest Med.—Northwest Medicine. Seattle, Wash.

Nourrisson—Le nourrisson. Revue d'hygiène et de pathologie de la première enfance. J. B. Baillière et fils, Paris.

Nouv. iconog. Salpêtrière—Nouvelle iconographie de la Salpêtrière, clinique des maladies du système nerveux. Paris.

Nuntius radiol.—Nuntius radiologicus. Florence, Italy

Nursing Res.—Nursing Research. New York.

Nutrition Abstr. & Rev.—Nutrition Abstracts and Reviews. Rowett Research Institute, Aberdeen, Scotland.

Obozr. psikhiat. nevrol.—Obozrenie psikhiatrii, nevrologii i eksperimental'noi psikhologii (Review of Psychiatrics, Neurology and Experimental Psychology). Leningrad.

Obshchest.-san. obozr.—Obshchestvenno-sanitarnoe obozrenie (Public Health Review). Leningrad.

Obst. y ginec. latino-am.—Obstetricia y ginecología latino-americanas. Buenos Aires.

Obst. & Gynec.—Obstetrics and Gynecology. Paul B. Hoeber, New York.

Obst. & Gynec. Surv.—Obstetrical and Gynecological Survey. Williams & Wilkins Co., Baltimore.

Oesterr. Monatsschr. Thierh.—Oesterreichische Monatsschrift für Thierheilkunde. Vienna.

Misión estud.pat.reg.argent.—Misión de estudios de patología regional argentina. Ministerio de educación, Universidad de Buenos Aires, Buenos Aires.

Mississippi Doctor—Mississippi Doctor Booneville.

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Missouri Med.—Missouri Medicine. [Continuation of J Missouri M.A.] St. Louis.

Mitt.anthrop Gesellsch.Wien—Mitteilung der anthropologischen Gesellschaft in Wien. Vienna.

Mitt.Gesellsch.inn.Med.u.Kinderh—Mitteilungen der Gesellschaft für innere Medizin und Kinderheilkunde. Vienna.

Mitt.gynaek.Klin.O.Engström in Helsingfors—Mitteilungen aus der gynaekologischen *Klinik des Prof. Dr. Otto Engström in Helsingfors. Berlin*

Mitt.med.Fak.k.Univ.Kyushu Fukuoka—Mitteilungen aus der medizinischen Fakultät der kaiserlichen Universität Kyushu Fukuoka, Japan. Kyushu

Mitt.med.Gesellsch.Osaka—Mitteilungen der medizinischen Gesellschaft zu Osaka. Osaka, Japan.

Mitth.thierärztl.Praxis preuss.Staate—Mittheilungen aus der thierärztlichen Praxis im preussischen Staate. [Suppl. to Arch.wissensch.u prakt.Thierh.] Berlin.

Mod.Concepts Cardiovas.Dis.—Modern Concepts of Cardiovascular Disease. American Heart Association, New York.

Mod.Hosp—Modern Hospital. Chicago.

Mois méd.-chir—Mois médico-chirurgical. Paris.

Monatsh.prakt.Dermat.—Monatshefte für praktische Dermatologie [Continued as Dermat.Wchnschr.]

Monatsh.prakt.Thierh.—Monatshefte für praktische Thierheilkunde Stuttgart, Germany

Monatschr Kinderh.—Monatsschrift für Kinderheilkunde Springer Verlag Berlin.

Monatschr.Krim.-psychol—Monatsschrift für Kriminal-psychologie und Strafrechtsreform. Heidelberg Germany

Monatschr ungar.Med.—Monatsschrift ungarischer Mediziner Budapest.

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Monatschr Unfallh.—Monatsschrift für Unfallheilkunde und Versicherungsmedizin Springer Verlag Berlin.

Monit.zool.ital.—*Monitore zoologico italiano.* Siena Florence, Italy

Monogr.rev españ.reum. See Rev españ.reum.

Month.Bull.Min.Health—Monthly Bulletin of the Ministry of Health and Public Health Laboratory Service. London

Month.Rev.New York State Dept.Labor—Monthly Review of the Division of Industrial Hygiene, New York State Department of Labor New York

Monthly Cycl.Pract.Med.—Monthly Cyclopaedia of Practical Medicine Philadelphia

Montpellier méd.—Montpellier médical. Montpellier France

Morgagni—Morgagni. Milan, Italy [Ceased publication]

Movimento med.—Movimento médico Rio de Janeiro

München.med.Wchnschr—Munchener medizinische Wochenschrift Munich.

Mycopath.et mycol.appl.—Mycopathologie et mycologia applicata The Hague

Nature, London—Nature. Macmillan & Co. Ltd London.

Naunyn-Schmiedebergs Arch.exper.Path.u.Pharmakol. See Arch.exper Path.u Pharmakol.

Polski tygodnik lek.—Polski tygodnik lekarski. Warsaw

Portugal méd.—Portugal médico. Pôrto, Portugal.

Postgrad.M.J.—Postgraduate Medical Journal. London.

Postgrad.Med.—Postgraduate Medicine. Minneapolis, Minn.

Pract.oto-rhino-laryng.—Practica oto-rhino-laryngologica. S. Karger. Basel, Switzerland.

Practitioner—Practitioner. London.

Prag.med.Wchnschr.—Prager medizinische Wochenschrift. Prague, Czechoslovakia.

Prat.chir.—Pratica chirurgica e delle discipline affini. Perugia, Italy

Prensa méd.argent.—La prensa médica argentina. Buenos Aires.

Prensa méd., La Paz—Prensa médica. La Paz, Bolivia.

Presse méd.—La Presse médicale. Masson et Cie., Paris.

Presse therm.et climat.—Presse thermale et climatique. Paris.

Proc.A.Life Insur.Pres.—Proceedings of the Association of Life Insurance Presidents. New York.

Proc.A.Res.Nerv.& Ment.Dis.: See A.Res.Nerv & Ment.Dis.Proc.

Proc.Am.A.Ad.Sc.—Proceedings of the American Association for the Advancement of Science. Salem, Mass.

Proc.Am.Diabetes A.—Proceedings of the American Diabetes Association. New York.

Proc.Am.Fed.Clin.Res.: [Published in Am.J.Med.]

Proc.Am.Pharm.A.—Proceedings of the American Pharmaceutical Association. Philadelphia.

Proc.Ann.Cong.M.Educ.& Licen.—Proceedings of the Annual Congress on Medical Education and Licensure. [Bound with Medical Education in the United States and Canada.] American Medical Association, Chicago.

Proc.Inst.Med.Chicago—Proceedings of the Institute of Medicine of Chicago. Chicago.

Proc.Internat.Assemb.Inter-State Post-Grad.M.A.North America—Proceedings of the International Assembly of the Inter-State Post-Graduate Medical Association of North America. Atlanta, Ga.

Proc.Nutrition Soc.—Proceedings of the Nutrition Society. [Formerly bound with Brit.J. Nutrition.] Cambridge University Press, London.

Proc.Roy.Australasian Coll.Physicians: Ceased publication.

Proc.Roy.Soc.London, s.B—Proceedings of the Royal Society, series B (Biological Sciences). Cambridge University Press, London.

Proc.Roy.Soc.Med.—Proceedings of the Royal Society of Medicine. H. K. Lewis, London. [American agent—Grune & Stratton, New York.]

Proc.Soc.Exper.Biol.& Med.—Proceedings of the Society for Experimental Biology and Medicine. Utica, N.Y.

Proc.Staff Meet.Mayo Clin.—Proceedings of the Staff Meetings of the Mayo Clinic. Rochester, Minn.

Progr.méd., Paris—Le progrès médical. Paris.

Przegl.chir.—Przegląd chirurgiczny (Surgical Review). Warsaw, Poland.

Psychiatric Quart.—Psychiatric quarterly. Utica State Hospital, Utica, N.Y.

Psychiatry—Psychiatry. White Psychiatric Foundation, Inc., Washington, D.C.

Psychoanalyt.Quart.—Psychoanalytic Quarterly. New York.

Psychoanalyt.Rev.—Psychoanalytic Review. New York.

Psychol.Praxis—Psychologische Praxis. S. Karger. Basel, Switzerland.

Psychosom.Med.—Psychosomatic Medicine. Paul B. Hoeber, Inc., New York.

Oesterr.-ungar Vrtljschr.Zahnh.—Oesterreichische-ungarische Vierteljahresschrift für Zahnheilkunde. Vienna.

Oesterr.Ztschr.Kinderh.—Oesterreichische Zeitschrift für Kinderheilkunde. Vienna.

Oesterr.Ztschr.Stomatol.—Oesterreichische Zeitschrift für Stomatologie. Vienna.

Oesterr.Ztschr wissensch.Veterinärk.—Oesterreichische Zeitschrift für wissenschaftliche Veterinärkunde. Vienna.

Oftal.zhur—Oftalmologicheskiy zhurnal. Odessa, U.S.S.R.

Ohio M.J—*Ohio State Medical Journal*. Columbus.

Oncologia—Oncologia. S. Karger Basel, Switzerland.

Ophthalmologica—Ophthalmologica. S Karger Basel, Switzerland.

Oral Surg—Oral Surgery, Oral Medicine and Oral Pathology C. V Mosby Co., St. Louis.

Ortop.e traumatol.—Ortopedia e traumatologia dell apparato motore. Clinica Ortopedica, Città Universitaria, Rome.

Orvosok lapja—Orvosok lapja. Budapest.

Oto-rhino-laryng.internat.: Ceased publication.

Oto-rino-laring.ital.—L'Oto-rino-laringologia italiana. L. Cappelli, Bologna.

Parasitology—Parasitology Cambridge University Press, London.

Pat.sper.e chir—Patologia sperimentale e chirurgia. Instituto di patologia chirurgica dell'Università, Padua, Italy

Pediat.prát.—Pediatria prática. São Paulo, Brazil.

Pediatria—La pediatria. Clinica Pediatrica, Naples, Italy

Pediatria españ.—Pediatría española. Madrid.

Pediatrics—Pediatrics. Charles C Thomas, Springfield, Ill.

Pédiatrie—Pédiatrie. Hôpital Edouard-Herriot, Lyon.

Pediatriya—Pediatriya. Moscow

Pennsylvania M.J—Pennsylvania Medical Journal. Harrisburg

Permanente Found.M.Bull.—Permanente Foundation Medical Bulletin. Oakland, Calif.

Pest.med.-chir.Presse—Pester medizinisch-chirurgische Presse. Budapest.

Pflügers Arch.ges.Physiol.: See Arch.ges.Physiol.

Pharm.Era—Pharmaceutical Era. New York.

Pharm.J—Pharmaceutical Journal. London.

Pharm.Zentralhalle—Pharmaceutische Zentralhalle fur Deutschland Berlin Dresden, Germany

Pharm.Ztg.—Pharmaceutische Zeitung Berlin.

Pharmacol.Rev—Pharmacological Reviews. Williams & Wilkins Co., Baltimore.

Philippine J.Surg—Philippine Journal of Surgery Manila

Philippine J Trop.Med.—Philippine Journal of Tropical Medicine Manila.

Phys.Therapy Rev—Physical Therapy Review New York.

Physiol.Rev—Physiological Reviews. Washington, D C.

Physiotherapy Rev: [Continued as Phys.Therapy Rev]

Plasma—Plasma. Milan, Italy

Plast.& Reconstruct.Surg—Plastic and Reconstructive Surgery Williams & Wilkins Co Baltimore.

Policlinico (sez.chir.)—*Il Policlinico (sezione chirurgica)* (sez.med.) Il Policlinico (sezione medica) (sez.prat.)—Il Policlinico (sezione pratica) L. Pozzi, Rome.

Rep.Brit.A.Adv.Sc.—Reports of the British Association for the Advancement of Science. London.

Res.Publ.A.Nerv.& Ment.Dis.: See A.Res.Nerv.& Ment.Dis.Proc.

Res.Quart.—Research Quarterly. American Association for Health, Physical Education, and Recreation, Washington, D.C.

Resenha clin.-cient.—Resenha clínico-científica. São Paulo, Brazil.

Reumatol.: See Riv.crit.clin.med.

Rev.anthrop.—Revue anthropologique. Paris.

Rev.argent.cardiol.—Revista argentina de cardiología. Buenos Aires.

Rev.argent.cien.méd.—Revista argentina de ciencias médicas. Buenos Aires.

Rev.argent.dermatosif.—Revista argentina de dermatosifilología. El Ateneo, Buenos Aires.

Rev.argent.urol.—Revista argentina de urología. Buenos Aires.

Rev.Asoc.méd.argent.—Revista de la Asociación médica argentina. Buenos Aires.

Rev.belge path.et méd.expér.—Revue belge de pathologie et de médecine expérimentale. (Continuation of Rev.belge sc.méd.) Brussels.

Rev.belge sc.méd.: (Continued as Rev.belge path.et méd.expér.)

Rev.brasil.cir.—Revista brasileira de cirurgia. Rio de Janeiro.

Rev.brasil.leprol.—Revista brasileira de leprologia. São Paulo.

Rev.brasil.med.—Revista brasileira de medicina. Rio de Janeiro.

Rev.brasil.oftal.—Revista brasileira de oftalmologia. Rio de Janeiro.

Rev.brasil.oto-rino-laring.—Revista brasileira de oto-rino-laringologia. São Paulo.

Rev.brasil.tuberc.—Revista brasileira de tuberculose. Rio de Janeiro.

Rev.chir.orthop.—Revue de chirurgie orthopédique et réparatrice de l'appareil moteur. Masson et Cie., Paris.

Rev.chir.Paris—Revue de chirurgie. Paris.

Rev.cir.São Paulo—Revista de cirurgia de São Paulo. São Paulo, Brazil.

Rev.clín.españ.—Revista clínica española. Madrid.

Rev.cubana cardiol.—Revista cubana de cardiología. Havana.

Rev.cubana pediat.—Revista cubana de pediatría. Havana.

Rev.cubana tuberc.—Revista de tuberculosis. Havana.

Rev.españ.enferm.ap.digest.—Revista española de las enfermedades del aparato digestivo y de la nutrición. Madrid.

Rev.españ.fisiol.—Revista española de fisiología. Barcelona.

Rev.españ.med.y cir.—Revista española de medicina y cirugía. Barcelona.

Rev.españ.obst.y ginec.—Revista española de obstetricia y ginecología. Valencia.

Rev.españ.oto-neuro-oftal.—Revista española de oto-neuro-oftalmología y neurocirugía. Valencia.

Rev.españ.pediat.—Revista española de pediatría. Zaragoza.

Rev.españ.reum.—Revista española de reumatismo y enfermedades osteoarticulares. Barcelona.

Rev.españ.tuberc.—Revista española de tuberculosis. Madrid.

Rev.españ.urol.y dermat.—Revista española de urología y dermatología. Madrid.

Rev.Gastroenterol.—Review of Gastroenterology. New York.

Rev.gén.ophth.—Revue générale d'ophthalmologie. Paris.

Rev.gynéc.et chir.abd.—Revue de gynécologie et de chirurgie abdominale. Paris.

Rev.gynec.e obst.—Revista de gynecologia e d'obstetricia. Rio de Janeiro.

Pub.Health Rep.—Public Health Reports. Superintendent of Documents, Washington, D C.

Pubbl.stazione zool.Napoli—Pubblicazioni della stazione zoologica di Napoli. Naples, Italy

Publ.Centro Invest.tisiol.—Publicaciones del Centro de investigaciones tisiologicas. Policlinico Tornú, Buenos Aires.

Publ.méd.—Publicações médicas. São Paulo, Brazil.

Puerto Rico J.Pub.Health Ceased publication.

Quaderni psichiat.—Quaderni di psichiatria. Genoa, Italy

Quart.Bull.Northwestern Univ.M.School—Quarterly Bulletin, Northwestern University Medical School. Chicago.

Quart.Bull.Sea View Hosp—Quarterly Bulletin of Sea View Hospital. Staten Island, N Y

Quart.Fed.State M.Bd.—Quarterly of the Federation of State Medical Boards of the United States. Easton, Pa.

Quart.J.Exper.Physiol.—*Quarterly Journal of Experimental Physiology and Cognate* Medical Sciences. E. & S Livingstone, Ltd. Edinburgh.

Quart.J.Med.—*Quarterly Journal of Medicine. Oxford University Press, London.*

Quart.J.Stud.Alcohol—Quarterly Journal of Studies on Alcohol. Yale Station, New Haven, Conn.

Quart.Rev.Allergy—Quarterly Review of Allergy and Applied Immunology St. Paul, Minn.

Quart.Rev.Biol.—Quarterly Review of Biology Williams & Wilkins Co Baltimore

Quart.Rev.Pediat.—Quarterly Review of Pediatrics. (Incorporating the International Record of Pediatrics.) MD Publications, New York.

Queen's M.Quart.—Queen's Medical Quarterly Kingston, Ontario.

Quinzaine méd.—Quinzaine médicale de la France et de l'étranger Paris.

Radiography—Radiography Syracuse, N Y

Radiol.med.—La radiologia medica. Edizioni Minerva medica, Turin Italy

Radiol.Rev.& Chicago M.Rec.—Radiological Review and Chicago Medical Recorder [Continuation of Chicago M.Rec.] Chicago.

Radiology—Radiology Syracuse, N Y

Radium, Paris—Radium. Paris.

Rapp.épidémiol.demogr: See Epidemiol.& Vital Statist.Rep.

Rapp épidémiol.Soc.Nations: See Epidemiol.Rep.League of Nations.

Rass.fisiopat.clin.—Rassegna di fisiopatologia clinica e terapeutica Ospedali S. Chiara, Pisa, Italy

Rass.ital.ottal.—Rassegna italiana d'ottalmologia. Clinica oftalmica dell'Università, Turin.

Rass.med.indust.—Rassegna di medicina industriale Turin, Italy

Rass.neurol.veget.—Rassegna di neurologia vegetativa. Florence Italy

Rass.previd.sociale—Rassegna della previdenza sociale [Ceased publication.]

Rass.studi psichiat.—Rassegna di studi psichiatrici. Ospedale Psichiatrico d S Niccolò, Siena, Italy

Rec.opht.—Recueil d'ophtalmologie. Paris.

Rec.trav.chim.Pays-Bas—Recueil des travaux chimiques des Pays-Bas. Amsterdam.

Recenti progr.med.—Recenti progressi in medicina. Rome.

Rendic.Ist.super.san.—Rendiconti Istituto superiore di sanità. Rome

Rev.neuro-psiquiat.—Revista de neuro-psiquiatría. Lima, Peru.

Rev.neurol.—Revue neurologique. Masson et Cie., Paris.

Rev. neuropsychopath.—Revue v neuropsychopathologii, therapii, verejné hygieně a lékařství sociálním. Prague, Czechoslovakia.

Rev.ortop.y traumatol.—Revista de ortopedia y traumatología. Buenos Aires.

Rev.d'oto-neuro-opht.—Revue d'oto-neuro-ophthalmologie. Paris.

Rev.otorrinolaring.—Revista de otorrinolaringología. Santiago, Chile.

Rev.paulista med.—Revista paulista de medicina. São Paulo, Brazil.

Rev.port.obst.ginec.e cir.—Revista portuguesa de obstetrícia, ginecologia e cirurgia. Clínica Dr. Daniel de Matos, Coimbra.

Rev.prat.—La revue du praticien. J. B. Baillière et fils, Paris.

Rev.prat.biol.—Revue pratique de biologie appliquée à la clinique et à la thérapeutique. Paris.

Rev.prat.obst.et gynéc.—Revue pratique d'obstétrique et de gynécologie. Paris.

Rev.psiquiat.y psicol.méd.—Revista de psiquiatría y psicología médica de Europa y América Latina. Barcelona, Spain.

Rev.Radiol.-X.—Revista de Radiología-X. Berlin.

Rev.san.e hig.púb.—Revista de sanidad e higiene pública. Madrid.

Rev.san.mil.argent.—Revista de la sanidad militar argentina. Buenos Aires.

Rev.Serv.espec.saúde púb.—Revista do Serviço especial de saúde pública. Rio d Janeiro.

Rev.Soc.argent.biol.—Revista de la Sociedad argentina di biología. Buenos Aires.

Rev.Soc.puericult.Buenos Aires—Revista de la Sociedad de puericultura de Buenos Aires. Buenos Aires.

Rev.thérap.méd.-chir.—Revue de thérapeutique médico-chirurgicale. Paris.

Rev.tuberc., Lima—Revista de tuberculosis. Lima, Peru.

Rev.tuberc., Paris—Revue de la tuberculose. Masson et Cie., Paris.

Rev.tuberc.Uruguay. Continued as Tórax.]

Rheumatism—Rheumatism. Rolls House Publishing Co., London.

Rhode Island M.J.—Rhode Island Medical Journal. Providence.

Riforma med.—La riforma medica. Naples, Italy

Riv.anat.pat.e onc.—Rivista di anatomia patologica e di oncologia. Padua, Italy

Riv.antropol.—Rivista di antropologia. Rome.

Riv.biol.—Rivista di biologia. Milan, Italy

Riv.clin.Bologna—Rivista clinica di Bologna. Bologna, Italy

Riv.clin.pediat.—Rivista di clinica pediatrica. Vallecchi, Florence, Italy

Riv.crit.clin.med.—Rivista critica di clinica medica. [Including Suppl.: Marginalia dermatologica, Marginalia otolaryngologica, Reumatologica.] Florence, Italy

Riv.ig. san.pubb.—Rivista d'igiene sanità pubblica. Rome.

Riv.internaz.terap.fis.—Rivista internazionale di terapia fisica. Rome.

Riv.Ist.sieroterap.ital.—Rivista dell'Istituto sieroterapico italiano. Naples.

Riv.ital.ginec.—Rivista italiana di ginecologia. L. Cappelli, Bologna.

Riv.ital.neuropat.—Rivista italiana di neuropatologia, psichiatria ed elettroterapia. Catania, Italy

Riv.malariol.—Rivista di malariologia. Policlinico "Umberto I," Rome.

Riv.med.—Rivista medica. Milan, Italy

Riv.med. aeronaut.—Rivista di medicina aeronautica. Rome.

Rev.hemat.—*Revue d'hématologie.* Masson et Cie., Paris.

Rev.Hosp clin.—Revista do Hospital das clínicas da Faculdade de medicina da Universidade de São Paulo. São Paulo, Brazil.

Rev.Hosp La Samaritana: Ceased publication.

Rev.Hosp.niño.—Revista del Hospital del niño. Lima, Peru

Rev.Hosp.N.S.Aparecida—Revista do Hospital Nostra Senhora Aparecida. São Paulo.

Rev.ibero-am.cien.méd.—Revista ibero-americana de ciencias médicas. Madrid.

Rev.immunol.—Revue d'immunologie et de thérapie antimicrobienne. Masson et Cie., Paris.

Rev.Inst.Adolfo Lutz—Revista do Instituto Adolfo Lutz. São Paulo, Brazil.

Rev.Inst.salub.y enferm.trop.—Revista del Instituto de salubridad y enfermedades tropicales. Mexico, D.F.

Rev.internat.Croix-Rouge—Revue internationale de la Croix Rouge et Bulletin international des Sociétés de la Croix Rouge. [Includes Suppl. in English.] Geneva.

Rev.internat.hyg et thérap.ocul.—Revue internationale d'hygiène et de thérapeutique oculaire. Paris.

Rev.invest.clín.—Revista de investigación clínica. Hospital de enfermedades de la nutrición, Mexico, D.F.

Rev laryng.—*Revue de laryngologie, otologie, rhinologie.* Bordeaux, France.

Rev.med.brasil.—Revista medica brasileira. Rio de Janeiro.

Rev.méd.Chile—Revista médica de Chile. Santiago.

Rev.méd.-chir.mal.foie—Revue médico-chirurgicale des maladies du foie, du pancréas, rate. Lyon, France.

Rev.med.y cir.—Revista de medicina y cirugía. Barcelona, Spain.

Rev.med.y cir pract.—*Revista de medicina y cirugía prácticas.* Madrid.

Rev.med.e cir.São Paulo—Revista de medicina e cirurgia de São Paulo. São Paulo, Brazil.

Rev.méd.córdoba—Revista médica de Córdoba. Cordoba, Argentina.

Rev.méd.cubana—*Revista médica cubana.* Havana

Rev.méd.domin.—Revista médica dominicana. Ciudad Trujillo, Dominican Republic.

Rev.méd.Hosp.gen.—*Revista médica del Hospital general.* Mexico, D.F.

Rev.med.e hyg.mil.—Revista de medicina e hygiene militar. Rio de Janeiro.

Rev.méd.Liége—Revue médicale de Liége. Liége, Belgium.

Rev.méd.,México—Revista médica. Mexico, D.F.

Rev.méd.nav.—Revue de médecine navale (métropole et outre-mer). Masson et Cie., Paris.

Rev.méd.-quir.—*Revista médico-quirúrgica.* Quito, Ecuador

Rev.méd.-quir Oriente—Revista médico-quirúrgica de Oriente. Lacret y Aguilera. Santiago, Cuba.

Rev.méd.Rosario—Revista médica de Rosario. Rosario de Santa Fe, Argentina.

Rev.med.São Paulo—Revista medica de São Paulo. São Paulo, Brazil

Rev.méd.Suisse Rom.—Revue médicale de la Suisse Romande. Imprimeries Réunies, S.A., Lausanne

Rev.méd Valparaíso—Revista médica de Valparaíso. Valparaíso, Chile.

Rev.mens.gynéc.obst.et pédiat.—Revue mensuelle de gynécologie, d'obstétrique et de pédiatrie. Paris.

Rev.mens.mal.enf.—Revue mensuelle des maladies de l'enfance. Paris.

Rev.mex.biol.—Revista mexicana de biología. Mexico, D.F.

Schweiz.Ztschr.Tuberk.—Schweizerische Zeitschrift für Tuberkulose. [Suppl. Bibliotheca tuberculosea.] S. Karger. Basel, Switzerland.

Science—Science. American Association for the Advancement of Science. Washington.

Scient.Month.—Scientific Monthly. American Association for the Advancement of Science, Washington, D.C.

Scientia—Scientia. Bologna, Italy.

Scottish M.J.—Scottish Medical Journal. (Continuation of Edinburgh M.J. and Glasgow M.J.) Gilmour & Lawrence. Glasgow.

Scritti biol.—Scritti biologici raccolti da Luigi Castaldi. Stabilimento Tipografico San Bernardino, Siena, Italy.

Segur.social—Seguridad social. Mexico, D.F.

Semaine gynéc.—Semaine gynécologique. Paris.

Semaine hôp.Paris—La semaine des hôpitaux de Paris. Expansion scientifique française. Paris.

Semaine méd.—Semaine médicale. Paris.

Semana méd.—La semana médica. Buenos Aires.

Semana méd.españ.—Semana médica española. Madrid.

Settimana med.sper.—Settimana medica dello sperimentale. Florence, Italy.

Sight-Saving Rev.—Sight-Saving Review. National Society for the Prevention of Blindness, Inc., New York.

Siglo méd.—Siglo médico. Madrid.

Smithsonian Inst.Annual Rep.—Annual Report of the Board of Regents of the Smithsonian Institution. Washington, D.C.

Smithsonian Misc.Collect.—Smithsonian Miscellaneous Collections. Washington, D.C.

Soc.cir.Córdoba bol.y trab. See Bol. y trab.Soc.cir.Córdoba.

Soc.med.Havn.collect.—Societatis medicae Havniensis collectanea. Copenhagen.

South African J.Clin.Sc.—South African Journal of Clinical Science. Cape Town.

South African J.M.Sc.—South African Journal of Medical Sciences. University of Witwatersrand, Johannesburg.

South African M.J.—South African Medical Journal. Cape Town.

South Dakota J.Med.& Pharm.—South Dakota Journal of Medicine and Pharmacy. Sioux Falls.

South.Gen.Pract.—Southern General Practitioner of Medicine and Surgery. Charlotte, N.C. [Continuation of South.Med.& Surg.]

South.M.J.—Southern Medical Journal. Birmingham, Ala.

South.Med.& Surg. [Continued as South.Gen.Pract.]

Southwestern Med.—Southwestern Medicine. El Paso, Texas.

Sovet.klin.—Sovetskaya klinika. Moscow.

Sovet.psikhonevrol.—Sovetskaya psikhonevrologiya. Kharkov, U.S.S.R.

Sovet.vestnik venerol.i dermat.—Sovetskiy vestnik venerologii i dermatologii. Moscow.

Soziale Med.u.Hyg.—Soziale Medizin und Hygiene. Hamburg, Germany.

Sperimentale—Lo sperimentale. Archivio di biologia normale e patologica. Florence, Italy.

St.Thomas Rep.—St. Thomas' Reports. St. Thomas' Hospital Medical School, London.

Stain Technol.—Stain Technology. Williams & Wilkins Co., Baltimore.

Stanford M.Bull.—Stanford Medical Bulletin. San Francisco.

Statist.Bull.Metrop.Life Insur.Co.—Statistical Bulletin. Metropolitan Life Insurance Company. New York.

Riv.med.leg., Milan—Rivista di medicina legale e di giurisprudenza medica. Milan, Italy

Riv.neurol.—*Rivista di neurologia. Naples, Italy*

Riv.oftal.—Rivista di oftalmologia. L. Salpietra, Florence, Italy

Riv.oto-neuro-oftal.—Rivista oto-neuro-oftalmologica. Ospedale S. Orsola, Bologna, Italy

Riv pat.e clin.tuberc.—Rivista di patologia e clinica della tubercolosi. L. Cappelli, Bologna, Italy

Riv pat.nerv—*Rivista di patologia nervosa e mentale.* Clinica di San Salvi, Florence Italy

Riv psicol.applic.pedagog—Rivista di psicologia applicata alla pedagogia ed alla *psicopatologia. Bologna, Italy*

Riv.storia sc.med.e nat.—*Rivista di storia delle scienze mediche e naturali.* Florence Italy

Rocky Mountain M.J—Rocky Mountain Medical Journal. Denver

Roy.London Ophth.Hosp.Rep—*Royal London Ophthalmic Hospital Reports.* London

Roy.Melbourne Hosp Clin.Rep—Royal Melbourne Hospital Clinical Reports. Melbourne, Australia.

Rozhl.chir—Rozhledy v chirurgii. Prague, Czechoslovakia.

Russk.arch.pat.klin.med.i bakt.—Russkiy archiv patologii, klinicheskoi meditsini i bakteriologii. *Leningrad.*

Russk.j.kozhn. i ven.biol.—Russkiy zhurnal kozhnikh i venericheskikh bolieznei Kharkov U.S.S.R.

Russk vrach—Russkiy vrach. Leningrad.

S Clin.North America—Surgical Clinics of North America. W B. Saunders Co., Philadelphia.

S.Forum—Surgical Forum W B. Saunders Co., Philadelphia.

Salubridad—Salubridad. Mexico, D.F

San.aeronaut.: Ceased publication.

Sang—Le sang biologie & pathologie. G Doin & Cie Paris.

Sc.med.ital.—Scientia medica italica. Il pensiero scientifico, Rome.

Sc.Rep.Res.Inst.Tohoku Univ—*Science Reports of the Research Institutes of Tohoku* University Series C (Medicine) Sendai, Japan.

Scalpel—Scalpel. Brussels.

Scandinav.J Clin.& Lab.Invest.—*Scandinavian Journal of Clinical & Laboratory Investigation.* Rikshospitalet, Oslo.

Schmidts Jahrb.—Schmidt's Jahrbücher *Leipzig*

Schweiz.Arch.Neurol.u.Psychiat.—Schweizer Archiv fur Neurologie und Psychiatrie Art.Institut Orell Füssli, Zurich, Switzerland.

Schweiz.Bl.Gesndhtspflg—Schweizerische Blätter fur Gesundheitspflege [Continuation of Bl.Gesndhtspflg] Zurich, Switzerland.

Schweiz.med.Wchnschr—Schweizerische medizinische Wochenschrift B. Schwabe & Co., Basel, Switzerland.

Schweiz.Monatschr prakt.Med.—Schweizerische Monatsschrift fur praktische Medizin Berne, Switzerland.

Schweiz.Ztschr.allg.Path.—Schweizerische Zeitschrift für allgemeine Pathologie und Bakteriologie. S. Karger Basel, Switzerland.

Schweiz.Ztschr.Heilk.—Schweizerische Zeitschrift für Heilkunde Berne Switzerland.

Schweiz.Ztschr.Tuberk.—Schweizerische Zeitschrift für Tuberkulose. [Suppl. Bibliotheca tuberculosea.] S. Karger Basel, Switzerland.

Science—Science. American Association for the Advancement of Science, Washington

Scient.Month.—Scientific Monthly American Association for the Advancement of Science, Washington, D C.

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Semaine hôp.Paris—La semaine des hôpitaux de Paris. Expansion scientifique française, Paris.

Semaine méd.—Semaine médicale. Paris.

Semana méd.—La semana médica. Buenos Aires.

Semana méd.españ.—Semana médica española. Madrid.

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Smithsonian Misc.Collect.—Smithsonian Miscellaneous Collections. Washington, D C.

Soc.cir.Córdoba bol.y trab.: See Bol. trab.Soc.cir Córdoba.

Soc.med.Havn.collect.—Societatis medicae Havniensis collectanea. Copenhagen.

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Sovet.psikhonevrol.—Sovetskaya psikhonevrologiya. Kharkov U.S.S.R.

Sovet.vestnik venerol.i dermat.—Sovetskiy vestnik venerologii dermatologii Moscow

Soziale Med.u.Hyg.—Soziale Medizin und Hygiene Hamburg, Germany

Sperimentale—Lo sperimentale Archivio di biologia normale patologica. Florence Italy

St.Thomas Rep.—St. Thomas Reports. St. Thomas's Hospital Medical School, London

Stain Technol.—Stain Technology Williams & Wilkins Co., Baltimore.

Stanford M.Bull.—Stanford Medical Bulletin. San Francisco.

Statist.Bull.Metrop.Life Insur.Co.—Statistical Bulletin Metropolitan Life Insurance Company New York.

Strahlentherapie—Strahlentherapie. Urban & Schwartzenberg Munich.

Surg Gynec.& Obst.—Surgery Gynecology and Obstetrics with International Abstract of Surgery Surgery Publishing Company of Chicago, Chicago.

Surgery—Surgery C. V Mosby Co. St. Louis.

Surv.Anesthesiol.—Survey of Anesthesiology Williams & Wilkins Co., Baltimore.

Survey—The Survey Survey Associates, Inc. New York.

Svenska läk.-sällsk.forhandl.: [Published in Nord.med.]

Texas J.Med.—Texas State Journal of Medicine. Austin.

Texas Rep.Biol.& Med.—*Texas Reports on Biology and Medicine. University of Texas* Medical Branch, Galveston.

Therap.Monatsh.—Therapeutische Monatshefte. Berlin.

Therap.Neuheiten—Therapeutische Neuheiten. Leipzig

Thorax—Thorax. The Thorax Society British Medical Association, London.

Thoraxchirurgie—Thoraxchirurgie. G Thieme, Stuttgart, Germany

Tidsskr.norske laegefor—Tidsskrift for den norske laegeforening Oslo.

Tijdschr.sociale hyg—Tijdschrift voor sociale hygiene en hygienische bladen. Zwolle, Netherlands.

Tohoku J.Exper.Med.—Tohoku Journal of Experimental Medicine. Incorporating Arbeiten aus dem anatomischen Institut der Kaiserlich Japanischen Universität zu Sendai and Mitteilungen über allgemeine Pathologie und pathologische Anatomie Maruzen Co., Tokyo.

Tórax—*El Tórax*. Montevideo, Uruguay

Torreón méd.—Torreón médico. Torreón, Mexico.

Tr.A.Am.Physicians—Transactions of the Association of American Physicians. The William J Dornan Co. Philadelphia.

Tr.A.Indust.M.Off—Transactions of the Association of Industrial Medical Officers. Dr J A. A. Mekelburg Peek Frean & Co. Ltd. London.

Tr.A.Life Insur.M.Dir.America—*Transactions of the Association of Life Insurance* Medical Directors of America. H. E. Ungerleider 393 Seventh Ave., New York

Tr.Am.A.Genito-Urin.Surgeons—Transactions of the American Association of Genito-Urinary Surgeons. Bruce Publishing Company St. Paul, Minn.

Tr.Am.Acad.Ophth.—Transactions of the American Academy of Ophthalmology and Otolaryngology Rochester Minn.

Tr.Am.Clin.& Climatol.A.—Transactions of the American Clinical and Climatological Association. Dr David Strayhorn 2122 W End Ave., Nashville 4 Tenn.

Tr.Am.Goiter A.—Transactions of the American Goiter Association. Charles C Thomas, Springfield, Ill.

Tr.Am.Gynec.Soc.—Transactions of the American Gynecological Society C V Mosby Co., St. Louis.

Tr.Am.Laryng.A.—Transactions of the American Laryngological Association. St. Louis.

Tr.Am.Laryng.Rhin.& Otol.Soc.—*Transactions of the American Laryngological* Rhinological and Otological Society Boston.

Tr.Am.Neurol.A.—Transactions of the American Neurological Association. New York.

Tr.Am.Ophth.Soc.—Transactions of the American Ophthalmological Society New York.

Tr.Am.S.A.—Transactions of the American Surgical Association. J B. Lippincott Co. Philadelphia.

Tr.Edinburgh Obst.Soc.: [Published in Edinburgh M.J]

Tr.Kansas Acad.Sc.—Transactions of the Kansas Academy of Science University of Kansas Library Lawrence.

Tr.M.Soc.London—Transactions of the Medical Society of London. London.

Tr.Med.-Chir.Soc.Edinburgh: [Published in Edinburgh M.J.]

T Nat.Tuberc.A.—Transactions National Tuberculosis Association. New York.

T New England Obst.& Gynec.Soc.—Transactions of the New England Obstetrical and Gynecological Society Boston.

T New England S.Soc.—Transactions of the New England Surgical Society New England Journal of Medicine, Boston.

Tr.Ophth.Soc.U.Kingdom—Transactions of the Ophthalmological Society of the United Kingdom. J & A. Churchill, Ltd., London.

Tr.Pacific Coast Obst.& Gynec.Soc.—Transactions of the Pacific Coast Obstetrical and Gynecological Society Western Journal of Surgery Publishing Co., Portland, Ore.

Tr.Pacific Coast Oto-Ophth.Soc.—Transactions of the Pacific Coast Oto-Ophthalmological Society Dr C. Allen Dickey 450 Sutter St., San Francisco.

T Roy.Med.-Chir.Soc.Glasgow: [Published in Glasgow M.J.]

T Roy.Soc.Trop.Med.& Hyg—Transactions of the Royal Society of Tropical Medicine and Hygiene. Manson House London.

T Sect.Ophth.A.M.A.—Transactions of the Section on Ophthalmology of the American Medical Association Chicago.

T South.S.A.—Transactions of the Southern Surgical Association. J B. Lippincott Co., Philadelphia.

T Southeast Sect.Am.Urol.A.—Transactions of the Southeastern Section of the American Urological Association. Raleigh, N C.

T & Stud.Coll.Physicians Philadelphia—Transactions and Studies of the College of Physicians of Philadelphia. Philadelphia.

T West.S.A.—Transactions of the Western Surgical Association American Medical Association Press, Chicago.

Tr West.Sect.Am.Urol.A.—Transactions of the Western Section of the American Urological Association. Dudley P Fagerstrom, San Jose, Calif.

Trab.Inst.Cajal invest.biol.—Trabajos del Instituto Cajal de investigaciones biológicas. Madrid

Trav.humain—Le travail humain. Presses universitaires de France Paris.

Treat.Serv.Bull.—Treatment Services Bulletin. Department of Veterans Affairs, Ottawa.

Tribuna méd.—Tribuna médica. Rio de Janeiro.

Tribune méd.—Tribune médicale. Paris.

Tubercle—Tubercle. The Journal of the British Tuberculosis Association. Staples Press, London

Tuberculology—Tuberculology The American Academy of Tuberculosis Physicians, Denver

Tuberkulosearzt—Der Tuberkulosearzt. G. Thieme Stuttgart, Germany

Tumori—Tumori Ambrosiana, Milan, Italy

Türk tib cem.mec. (Türk tip cem.mec.)—Türk tib cemiyeti mecmuasi. Istanbul, Turkey

U.S.Armed Forces M.J.—United States Armed Forces Medical Journal. Superintendent of Documents, Washington, D.C.

Ugesk.laeger—Ugeskrift for laeger Copenhagen.

Ulster M.J.—Ulster Medical Journal. Belfast, Ireland.

Umbria med.—Umbria medica. Terni, Italy

Ungar.med.Presse.—Ungarische medizinische Presse. Budapest.

Union méd.Canada—L'Union médicale du Canada. Montreal.

Strahlentherapie—Strahlentherapie. Urban & Schwartzenberg Munich.

Surg Gynec.& Obst.—Surgery Gynecology and Obstetrics with International Abstract of Surgery Surgery Publishing Company of Chicago, Chicago.

Surgery—Surgery C. V Mosby Co., St. Louis.

Surv.Anesthesiol.—*Survey of Anesthesiology* *Williams & Wilkins Co., Baltimore*

Survey—The Survey Survey Associates, Inc., New York.

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Thoraxchirurgie—Thoraxchirurgie. G Thieme Stuttgart Germany

Tidskr.norske laegefor—Tidsskrift for den norske laegeforening Oslo.

Tijdschr.sociale hyg—*Tijdschrift voor sociale hygiene en hygienische bladen. Zwolle,* Netherlands.

Tohoku J.Exper.Med.—Tohoku Journal of Experimental Medicine. Incorporating Arbeiten aus dem anatomischen Institut der Kaiserlich-Japanischen Universität zu Sendai and Mitteilungen über allgemeine Pathologie und pathologische Anatomie Maruzen Co., Tokyo.

Tórax—El Tórax. Montevideo, Uruguay

Torreón méd.—Torreón médico. Torreón Mexico.

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Tr.A.Indust.M.Off—Transactions of the Association of Industrial Medical Officers. Dr J A. A. Mekelburg Peek Frean & Co., Ltd., London.

Tr.A.Life Insur.M.Dir.America—Transactions of the Association of Life Insurance Medical Directors of America. H E. Ungerleider 393 Seventh Ave New York

Tr.Am.A.Genito-Urin.Surgeons—Transactions of the American Association of Genito-Urinary Surgeons. Bruce Publishing Company St. Paul, Minn.

Tr.Am.Acad.Ophth.—Transactions of the American Academy of Ophthalmology and Otolaryngology Rochester Minn.

Tr.Am.Clin.& Climatol.A.—Transactions of the American Clinical and Climatological Association Dr David Strayhorn, 2122 W End Ave., Nashville 4 Tenn.

Tr.Am.Goiter A.—Transactions of the American Goiter Association. Charles C Thomas, Springfield, Ill.

Tr.Am.Gynec.Soc.—Transactions of the American Gynecological Society C. V Mosby Co., St. Louis.

Tr.Am.Laryng.A.—Transactions of the American Laryngological Association St Louis.

Tr.Am.Laryng.Rhin.& Otol.Soc.—Transactions of the American Laryngological, Rhinological and Otological Society Boston.

Tr.Am.Neurol.A.—Transactions of the American Neurological Association. New York

Tr.Am.Ophth.Soc.—Transactions of the American Ophthalmological Society New York,

Tr.Am.S.A.—Transactions of the American Surgical Association. J B. Lippincott Co. Philadelphia.

Tr.Edinburgh Obst.Soc.: [Published in Edinburgh M J]

Tr.Kansas Acad.Sc.—Transactions of the Kansas Academy of Science University of Kansas Library Lawrence

Wien.klin.Wchnschr.—Wiener klinische Wochenschrift. Springer Verlag, Vienna.
Wien.med.Bl.—Wiener medizinische Blätter. Vienna.
Wien.med.Presse—Wiener medizinische Presse. Vienna.
Wien.Ztschr.inn.Med.—Wiener Zeitschrift für innere Medizin und ihre Grenzgebiete. Urban & Schwarzenberg, Vienna.
Wien.Ztschr.Nervenh.—Wiener Zeitschrift für Nervenheilkunde und deren Grenzgebiete. Springer Verlag, Vienna.
Wisconsin M.J.—Wisconsin Medical Journal. Madison.
Woman's M.J.—Woman's Medical Journal. Toledo, Ohio.
World M.A.Bull.—World Medical Association Bulletin. New York.
Yale J.Biol.& Med.—Yale Journal of Biology and Medicine. New Haven, Conn.
Zacchia—Zacchia. Rivista di medicina legale delle assicurazioni. Università di Roma, Rome.
Zahnärztl.Rundschau—Zahnärztliche Rundschau. Berlin.
Zentralbl.allg.Path.—Zentralblatt für allgemeine Pathologie und pathologische Anatomie. G. Fischer, Jena, Germany.
Zentralbl.Arbeitsmed.u.Arbeitsschutz—Zentralblatt für Arbeitsmedizin und Arbeitsschutz. [Continuation of Zentralbl. Gewerbehyg. u.Unfallverhüt.] D. Steinkopff, Darmstadt, Germany.
Zentralbl.Bakt.—Zentralblatt für Bakteriologie, Parasitenkunde, Infektionskrankheiten und Hygiene (Part 1). G. Fischer, Jena, Germany.
Zentralbl.Chir.—Zentralblatt für Chirurgie. J. A. Barth, Munich.
Zentralbl.ges.Chir.u.Grenzgeb.—Zentralblatt für die gesamte Chirurgie und ihre Grenzgebiete. Berlin.
Zentralbl.ges.Gynaek.u.Geburtsh.—Zentralblatt für die gesamte Gynaekologie und Geburtshilfe sowie deren Grenzgebiete. Berlin.
Zentralbl.ges.inn.Med.u.Grenzgeb.—Zentralblatt für die gesamte innere Medizin und deren Grenzgebiete. Berlin.
Zentralbl.ges.Physiol.u.Path.Stoffwechs.—Zentralblatt für die gesamte Physiologie und Pathologie des Stoffwechsels mit Einschluss der experimentellen Therapie. Berlin, Vienna. [Continuation of Centralbl. Stoffwechsel- u.Verdauungskr.]
Zentralbl.Gynäk.—Zentralblatt für Gynäkologie. J. A. Barth, Munich.
Zentralbl.Nervenh.u.Psychiat.—Zentralblatt für Nervenheilkunde und Psychiatrie. Coblenz, Germany; Leipzig.
Zentralbl.Neurochir.—Zentralblatt für Neurochirurgie. J. A. Barth, Munich.
Zentralbl.Physiol.—Zentralblatt für Physiologie. [Merged 1921 with Pflügers Arch.ges. Physiol., now Arch.ges.Physiol.]
Zentralbl.Röntgenstrahlen—Zentralblatt für Röntgenstrahlen, Radium und verwandte Gebiete. Wiesbaden, Germany.
Zhur.nevropat.i psikhiat.—Zhurnal nevropatologii i psikhiatrii. Moscow.
Zoologica—Zoologica. New York Zoological Society. New York.
Ztschr.allg.Physiol.—Zeitschrift für allgemeine Physiologie. Jena, Germany.
Ztschr.anal.Chem.—Zeitschrift für analytische Chemie. Wiesbaden, Germany.
Ztschr.Anat.—Zeitschrift für Anatomie und Entwicklungsgeschichte. Springer Verlag, Berlin.
Ztschr.ang.Anat.—Zeitschrift für angewandte Anatomie und Konstitutionslehre. Berlin.
Ztschr.ang.Psychol.—Zeitschrift für angewandte Psychologie und psychologische Sammelforschung. Leipzig.

***Univ.Buenos Aires, Misión estud.pat.reg.argent.*:** See Misión estud.pat.reg.argent.

Univ.Michigan M.Bull —University of Michigan Medical Bulletin. Ann Arbor

Univ Toronto M.J —University of Toronto Medical Journal.

Upsala läk.forh.: See Acta Soc.med.upsalien

Urol.& Cutan.Rev : Ceased publication

Urologia—Urologia. Treviso, Italy

Valsalva—Il Valsalva. L. Pozzi, Rome.

Verhandel.Akad.v Wetensch.—Verhandelingen der koninklijke Akademie van Wetenschappen. Amsterdam.

Verhandl.deutsch.Gesellsch.Chir —Verhandlungen der deutschen Gesellschaft für Chirurgie. Berlin.

Verhandl.deutsch.Gesellsch.inn.Med.—Verhandlungen der deutschen Gesellschaft für innere Medizin. J F Bergmann, Munich.

Verhandl.deutsch.Kong.inn.Med.—Verhandlungen des deutschen Kongresses fur innere Medizin. Wiesbaden, Germany

Verhandl.deutsch.path.Gesellsch.—Verhandlungen der deutschen pathologischen Gesellschaft. Jena, Germany

Verhandl.Ver.inn.Med.Berlin—Verhandlungen des Vereins für innere Medizin zu Berlin Berlin.

Vestnik khir —Vestnik khirurgii. Leningrad.

Vestnik oftal.—Vestnik oftalmologii. Moscow

Vestnik rentgen.i radiol.—Vestnik rentgenologii i radiologii. Leningrad.

Veterans Admin Tech.Bull.—Veterans Administration Technical Bulletin. Washington, D C.

Vida méd.—Vida médica. Rio de Janeiro.

Virchows Arch path.Anat.: See Arch.path.Anat.

Virginia Clin.Rec.—*Virginia Clinical Record. Richmond.*

Virginia M.Month.—Virginia Medical Monthly Richmond

von Graefes Arch.Ophth.: See Graefes Arch.Ophth.

Voyenno-med.J.—Voyenno-meditsinskii journal Leningrad.

Vrach—Vrach. Leningrad.

Vrach gaz.—Vrachebnaya gazeta. Leningrad.

Vrtljschr gerichtl.Med.—Vierteljahresschrift für gerichtliche Medizin und öffentliches Sanitätswesen Berlin.

Vrtljschr prakt.Heilk.—Vierteljahresschrift für die praktische Heilkunde. Prague, Czechoslovakia.

Vrtljschr prakt.Pharm.—Vierteljahresschrift für praktische Pharmacie Berlin

Wchnschr Therap.u.Hyg.Auges—Wochenschrift für Therapie und Hygiene des Auges. Breslau Germany

Weekly Epidemiol.Rec..See Epidemiol.& Vital Statist.Rep.

West.Canada M.J —Western Canada Medical Journal Winnipeg Manitoba.

West.J.Surg —Western Journal of Surgery Obstetrics and Gynecology Portland, Ore.

West London M.J —West London Medical Journal. London.

West.M.News—Western Medical News. Regina, Saskatchewan.

West Virginia M.J —West Virginia Medical Journal. Charleston.

Wien.klin.Rundschau—Wiener klinische Rundschau. Vienna.

Wien.klin.Wchnschr.—Wiener klinische Wochenschrift. Springer Verlag. Vienna.

Wien.med.Bl.—Wiener medizinische Blätter. Vienna.

Wien.med.Presse—Wiener medizinische Presse. Vienna.

Wien.Ztschr.inn.Med.—Wiener Zeitschrift für innere Medizin und ihre Grenzgebiete. Urban & Schwarzenberg. Vienna.

Wien.Ztschr.Nervenh.—Wiener Zeitschrift für Nervenheilkunde und deren Grenzgebiete. Springer Verlag, Vienna.

Wisconsin M.J.—Wisconsin Medical Journal. Madison.

Woman's M.J.—Woman's Medical Journal. Toledo, Ohio.

World M.A.Bull.—World Medical Association Bulletin. New York.

Yale J.Biol.& Med.—Yale Journal of Biology and Medicine. New Haven, Conn.

Zacchia—Zacchia. Rivista di medicina legale delle assicurazioni. Università di Roma, Rome.

Zahnärztl.Rundschau—Zahnärztliche Rundschau. Berlin.

Zentralbl.allg.Path.—Zentralblatt für allgemeine Pathologie und pathologische Anatomie. G. Fischer. Jena, Germany.

Zentralbl.Arbeitsmed.u.Arbeitsschutz—Zentralblatt für Arbeitsmedizin und Arbeitsschutz. [Continuation of Zentralbl. Gewerbehyg.u.Unfallverhüt.] D. Steinkopff, Darmstadt, Germany.

Zentralbl.Bakt.—Zentralblatt für Bakteriologie, Parasitenkunde, Infektionskrankheiten und Hygiene (Part 1). G. Fischer. Jena, Germany.

Zentralbl.Chir.—Zentralblatt für Chirurgie. J. A. Barth, Munich.

Zentralbl.ges.Chir.u.Grenzgeb.—Zentralblatt für die gesamte Chirurgie und ihre Grenzgebiete. Berlin.

Zentralbl.ges.Gynaek.u.Geburtsh.—Zentralblatt für die gesamte Gynaekologie und Geburtshilfe sowie deren Grenzgebiete. Berlin.

Zentralbl.ges.inn.Med.u.Grenzgeb.—Zentralblatt für die gesamte innere Medizin und deren Grenzgebiete. Berlin.

Zentralbl.ges.Physiol.u.Path.Stoffwechs.—Zentralblatt für die gesamte Physiologie und Pathologie des Stoffwechsels mit Einschluss der experimentellen Therapie. Berlin, Vienna. [Continuation of Centralbl.Stoffwechsel- u.Verdauungskr.]

Zentralbl.Gynäk.—Zentralblatt für Gynäkologie. J. A. Barth, Munich.

Zentralbl.Nervenh.u.Psychiat.—Zentralblatt für Nervenheilkunde und Psychiatrie. Coblenz, Germany. Leipzig.

Zentralbl.Neurochir.—Zentralblatt für Neurochirurgie. J. A. Barth, Munich.

Zentralbl.Physiol.—Zentralblatt für Physiologie. Merged 1921 with Pflügers Arch.ges. Physiol., now Arch.ges.Physiol.

Zentralbl.Röntgenstrahlen—Zentralblatt für Röntgenstrahlen, Radium und verwandte Gebiete. Wiesbaden, Germany.

Zhur.nevropat.psikhiat.—Zhurnal nevropatologii i psikhiatrii. Moscow.

Zoologica—Zoologica. New York Zoological Society. New York.

Ztschr.allg.Physiol.—Zeitschrift für allgemeine Physiologie. Jena, Germany.

Ztschr.anal.Chem.—Zeitschrift für analytische Chemie. Wiesbaden, Germany.

Ztschr.Anat.—Zeitschrift für Anatomie und Entwicklungsgeschichte. Springer Verlag, Berlin.

Ztschr.ang.Anat.—Zeitschrift für angewandte Anatomie und Konstitutionslehre. Berlin.

Ztschr.ang.Psychol.—Zeitschrift für angewandte Psychologie und psychologische Sammelforschung. Leipzig.

Ztschr.Balneol.Klimat.—Zeitschrift für Balneologie, Klimatologie und Kurort-Hygiene Berlin.

Ztschr.Bekämpf.Geschlechtskr.—Zeitschrift für Bekämpfung der Geschlechtskrankheiten. Leipzig

Ztschr.Chemotherap.—Zeitschrift für Chemotherapie und verwandte Gebiete [Continuation of Folia serol.] Leipzig

Ztschr.exper.Path.u.Therap.—Zeitschrift für experimentelle Pathologie und Therapie Berlin.

Ztschr.Geburtsh.u.Gynak.—Zeitschrift fur Geburtshilfe und Gynäkologie F Enke Stuttgart, Germany

Ztschr.ges.exper.Med.—Zeitschrift für die gesamte experimentelle Medizin. Springer Verlag, Berlin.

Ztschr.ges.inn.Med.—Zeitschrift für die gesamte innere Medizin und ihr Grenzgebiete G Thieme, Stuttgart, Germany [American agent—Grune & Stratton, New York.]

Ztschr.Gewerbe-Hyg.—Zeitschrift für Gewerbe Hygiene Vienna.

Ztschr.Heilk.—Zeitschrift für Heilkunde. Berlin Vienna.

Ztschr.Hyg.—Zeitschrift für Hygiene und Infektionskrankheiten Springer Verlag Berlin.

Ztschr.Immunitätsforsch.—Zeitschrift für Immunitätsforschung und experimentelle Therapie. G Fischer Jena, Germany

Ztschr.Kinderh.—Zeitschrift für Kinderheilkunde. Springer Verlag, Berlin.

Ztschr.klin.Med.—Zeitschrift für klinische Medizin. Springer Verlag Berlin.

Ztschr.Krebsforsch.—Zeitschrift für Krebsforschung Springer Verlag Heidelberg, Germany

Ztschr.Kreislaufforsch.—Zeitschrift für Kreislaufforschung Zugleich Fortsetzung von Zentralblatt fur Herz und Gefässkrankheiten. D Steinkopff Darmstadt, Germany

Ztschr.Laryng.Rhin.Otol.—Zeitschrift für Laryngologie, Rhinologie, Otologie und ihre Grenzgebiete. G Thieme, Stuttgart, Germany [American agent—Grune & Stratton, New York.]

Ztschr.Lebensm.-Untersuch.u.Forsch.—Zeitschrift für Lebensmittel Untersuchung und Forschung [Continuation of Ztschr Untersuch.Nahrungs- u Genussmittel.] Berlin

Ztschr.menschl.Vererb. u.Konstitutionslehre—Zeitschrift für menschliche Vererbungs- und Konstitutionslehre. Springer Verlag Berlin.

Ztschr.Ohrenh.—Zeitschrift für Ohrenheilkunde. Wiesbaden, Germany

Ztschr.Orthop.—Zeitschrift für Orthopädie und ihre Grenzgebiete. F Enke, Stuttgart, Germany

Ztschr.pädagog.Psychol.—Zeitschrift für pädagogische Psychologie, experimentelle Pädagogik und jugendkundliche Forschung Leipzig

Ztschr.Pathopsychol.—Zeitschrift für Pathopsychologie. Leipzig

Ztschr.Pflanzenkr.—Zeitschrift für Pflanzenkrankheiten Stuttgart, Germany

Ztschr.phys.u.diätet.Therap.—Zeitschrift für physikalische und diätetische Therapie Leipzig

Ztschr.Psychotherap.u.med.Psychol.—Zeitschrift fur Psychotherapie und medizinische Psychologie. Stuttgart Germany

Ztschr.rat.Med.—*Zeitschrift für rationelle Medizin. Zurich, Switzerland.*

Ztschr.Säuglings- u.Kleinkinderschutz—Zeitschrift für Säuglings- und Kleinkinderschutz. Berlin.

Ztschr.Sexualwissensch.—Zeitschrift für Sexualwissenschaft und Sexualpolitik. Berlin

Ztschr.soziale Med.—Zeitschrift für soziale Medizin. Leipzig

Ztschr.Stomatol.—Zeitschrift für Stomatologie. Urban & Schwarzenberg Munich.

Ztschr.Thermed.—Zeitschrift für Thermedizin. Jena, Germany

Ztschr.Tropenmed.u.Parasitol.—Zeitschrift für Tropenmedizin und Parasitologie. G. Thieme, Stuttgart, Germany. [American agent—Grune & Stratton, New York.]

Ztschr.Tuberk.—Zeitschrift für Tuberkulose. J. A. Barth, Munich.

Ztschr.Untersuch.Nahrungs- u.Genussmittel.—Zeitschrift für Untersuchung der Nahrungs- und Genussmittel, sowie der Gebrauchsgegenstände. [Combined 1943 with Vorratspflege u.Lebensmittelforsch. and continued as Ztschr.Lebensm. Untersuch.u. Forsch.]

Ztschr.Urol.—Zeitschrift für Urologie. G. Thieme, Stuttgart, Germany. [American agent—Grune & Stratton, New York.]

Ztschr.Vitamin- Hormon- u.Fermentforsch.—Zeitschrift für Vitamin- Hormon- und Fermentforschung. Urban & Schwarzenberg, Munich.

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